MITSUBISHI ELECTRIC

Changes for the Better

SPLIT-TYPE, AIR CONDITIONERS
SPLIT-TYPE, HEAT PUMP AIR CONDITIONERS

Revision:
- MXZ-A18WV -E1 have been added.
- MSC-A07/09/12WV -E1 Part No.·have changed.
  VARISTOR (NR11& NR12)
  E02 336 385 ➔ E02 749 385
- Please void OB307.

No. OB307
REVISED EDITION-A

HFC utilized
R410A

SERVICE MANUAL

Wireless type
Models

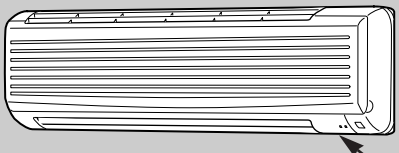
MSC-A07WV -E1(WH)	**· MU-A07WV -E1**
MSC-A09WV -E1(WH)	**· MU-A09WV -E1**
MSC-A12WV -E1(WH)	**· MU-A12WV -E1**
MSC-A07WV -E1(WH)	**· MUH-A07WV -E1**
MSC-A09WV -E1(WH)	**· MUH-A09WV -E1**
MSC-A12WV -E1(WH)	**· MUH-A12WV -E1**

Multi system type
Models

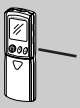
MSC-A07WV -E1(WH)	**· MUX-A10WV -E1**
MSC-A09WV -E1(WH)	**· MUX-A19WV -E1**
MSC-A12WV -E1(WH)	**· MUX-A20WV -E1**
	· MUX-A25WV -E1
	· MUX-A26WV -E1

Inverter-controlled multi system Model

· MXZ-A18WV -E1



MSC-A07WV -E1
MSC-A09WV -E1
MSC-A12WV -E1



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CE

1 TECHNICAL CHANGES

MSC-07RV-E4→MSC-A07WV-E1
MSC-09RV-E4→MSC-A09WV-E1
MSC-12RV-E4→MSC-A12WV-E1

1. Rated voltage has changed. (220-240V→230V)
2. Indoor model has changed.

MU-07RV-E4→MU-A07WV-E1

1. Refrigerant has changed. (R22→R410A)
2. Compressor has changed. (RH130VGCT→RN092VHSHT)

MU-09RV-E4→MU-A09WV-E1

1. Refrigerant has changed. (R22→R410A)
2. Compressor has changed. (RH140VGCT→RN099VHSHT)

MU-12RV-E4→MU-A12WV-E1

1. Refrigerant has changed. (R22→R410A)
2. Compressor has changed. (RH220VHAT→RN135VHSHT)

MUH-07RV-E4→MUH-A07WV-E1

1. Refrigerant has changed. (R22→R410A)
2. Compressor has changed. (RH130VGCT→RN092VHSHT)

MUH-09RV-E4→MUH-A09WV-E1

1. Refrigerant has changed. (R22→R410A)
2. Compressor has changed. (RH165VGCT→RN104VHSHT)

MUH-12RV-E4→MUH-A12WV-E1

1. Refrigerant has changed. (R22→R410A)
2. Compressor has changed. (RH220VHAT→RN135VHSHT)

MUX-10RV-E2→MUX-A10WV-E1

1. Outdoor model has changed.
2. Refrigerant has changed. (R22→R410A)

MUX-19TV-E1→MUX-A19WV-E1
MUX-20TV-E1→MUX-A20WV-E1
MUX-25TV-E1→MUX-A25WV-E1

1. Refrigerant has changed. (R22→R410A)

MUX-24RV-E2→MUX-A26WV-E1

1. Outdoor model has changed.
2. Refrigerant has changed. (R22→R410A)

MXZ-18TV -E2 → MXZ-A18WV -E1

- Outdoor model has changed.
- Refrigerant has changed.

INFORMATION FOR THE AIR CONDITIONER WITH R410A REFRIGERANT

- This room air conditioner adopts an HFC refrigerant (R410A) which never destroys the ozone layer.
- Pay particular attention to the following points, though the basic installation procedure is same as that for R22 conditioners.

① As R410A has working pressure approximate 1.6 times as high as that of R22, some special tools and piping parts/ materials are required. Refer to the table below.

② Take sufficient care not to allow water and other contaminations to enter the R410A refrigerant during storage and installation, since it is more susceptible to contaminations than R22.

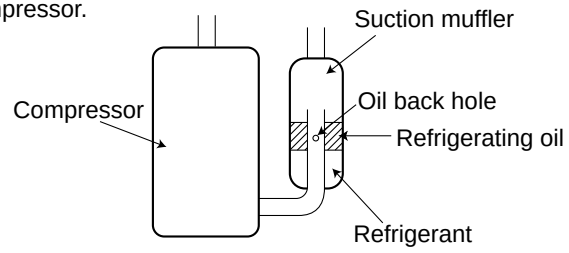
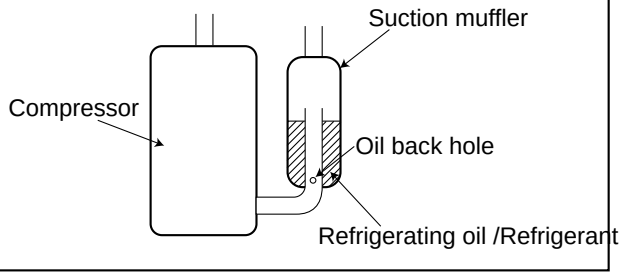
③ For refrigerant piping, use clean, pressure-proof parts/materials specifically designed for R410A. (Refer to 2. Refrigerant piping.)

④ Composition change may occur in R410A since it is a mixed refrigerant. When charging, charge liquid refrigerant to prevent composition change.

		New refrigerant	Previous refrigerant
Refrigerant	Refrigerant	R410A	R22
	Composition (Ratio)	HFC-32: HFC-125 (50%:50%)	R22 (100%)
	Refrigerant handling	Pseudo-azeotropic refrigerant	Single refrigerant
	Chlorine	Not included	Included
	Safety group (ASHRAE)	A1/A1	A1
	Molecular weight	72.6	86.5
	Boiling point (℃)	-51.4	-40.8
	Steam pressure [25℃](Mpa)	1.557	0.94
	Saturated steam density [25℃](Kg/m³)	64	44.4
	Combustibility	Non combustible	Non combustible
	ODP ※1	0	0.055
	GWP ※2	1730	1700
	Refrigerant charge method	From liquid phase in cylinder	Gas phase
	Additional charge on leakage	Possible	Possible
Refrigerating oil	Kind	Incompatible oil	Compatible oil
	Color	Non	Light yellow
	Smell	Non	Non

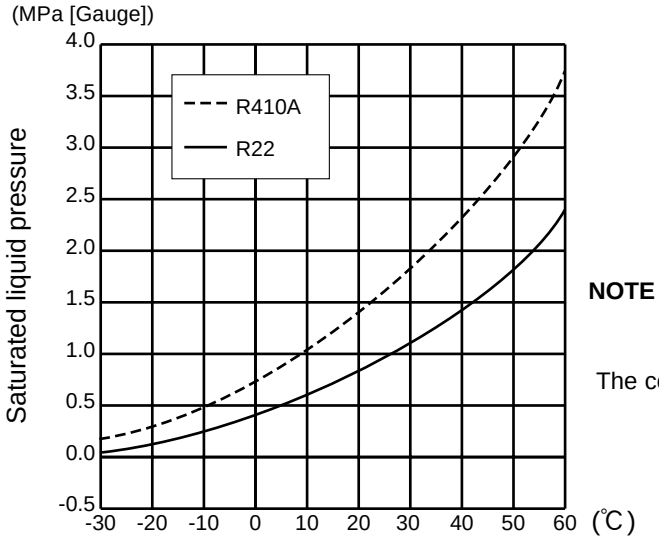
※1 :Ozone Destruction Parameter : based on CFC-11

※2 :Global Warmth Parameter : based on CO_2

	New Specification	Current Specification
Compressor	The incompatible refrigerating oil easily separates from refrigerant and is in the upper layer inside the suction muffler. Raising position of the oil back hole enables to back the refrigerating oil of the upper layer to flow back to the compressor. 	Since refrigerant and refrigerating oil are compatible each, refrigerating oil backs to the compressor through the lower position oil back hole. 

NOTE : The unit of pressure has been changed to MPa on the international system of units(SI unit system).
The conversion factor is: **1(MPa [Gauge]) =10.2(kgf/㎠ [Gauge])**

Conversion chart of refrigerant temperature and pressure



NOTE : The unit of pressure has been changed to MPa on the international system of units(SI unit system).

The conversion factor is: **1(MPa [Gauge]) =10.2(kgf/㎠ [Gauge])**

1.Tools dedicated for the air conditioner with R410A refrigerant

The following tools are required for R410A refrigerant. Some R22 tools can be substituted for R410A tools.
The diameter of the service port on the stop valve in outdoor unit has been changed to prevent any other refrigerant being charged into the unit. Cap size has been changed from 7/16 UNF with 20 threads to 1/2 UNF with 20 threads.

R410A tools	Can R22 tools be used?	Description
Gauge manifold	No	R410A has high pressures beyond the measurement range of existing gauges. Port diameters have been changed to prevent any other refrigerant from being charged into the unit.
Charge hose	No	Hose material and cap size have been changed to improve the pressure resistance.
Gas leak detector	No	Dedicated for HFC refrigerant.
Torque wrench	Yes	6.35 mm and 9.52 mm
	No	12.7 mm
Flare tool	Yes	Clamp bar hole has been enlarged to reinforce the spring strength in the tool.
Flare gauge	New	Provided for flaring work (to be used with R22 flare tool).
Vacuum pump adapter	New	Provided to prevent the back flow of oil. This adapter enables you to use vacuum pumps.
Electronic scale for refrigerant charging	New	It is difficult to measure R410A with a charging cylinder because the refrigerant bubbles due to high pressure and high-speed vaporization

No : Not Substitutable for R410A Yes : Substitutable for R410A

2.Refrigerant piping

① Specifications

Use the refrigerant pipes that meet the following specifications.

Pipe	Outside diameter mm	Wall thickness	Insulation material
For liquid	6.35	0.8 mm	Heat resisting foam plastic Specific gravity 0.045 Thickness 8 mm
For gas	9.52	0.8 mm	
	12.7	0.8 mm	

• Use a copper pipe or a copper-alloy seamless pipe with a thickness of 0.8 mm. Never use any pipe with a thickness less than 0.8mm, as the pressure resistance is insufficient.

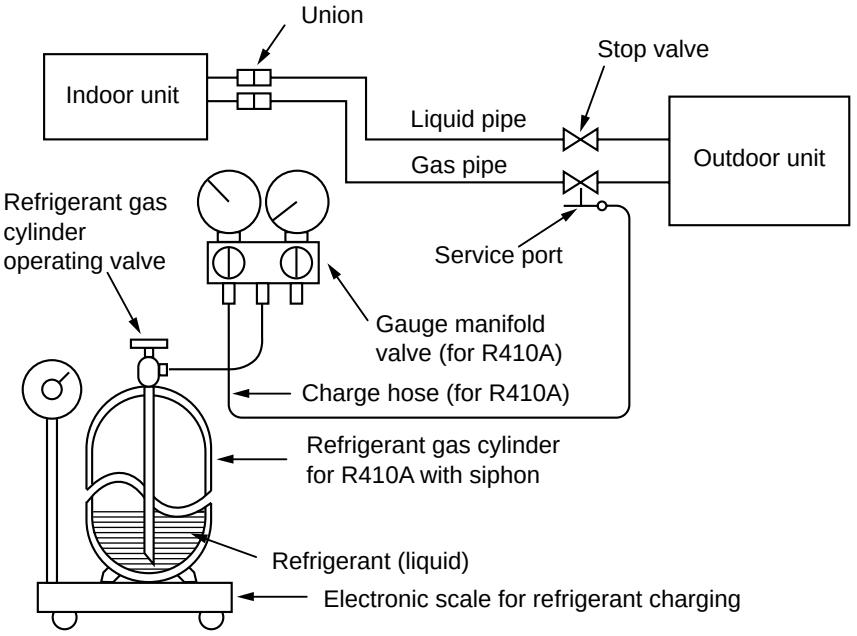
② Flaring work and flare nut
Flaring work for R410A pipe differs from that for R22 pipe.
For details of flaring work, refer to Installation manual “FLARING WORK”.

Pipe diameter	Dimension of flare nut	
mm	R410A	R22
6.35	17	17
9.52	22	22
12.7	26	24

3.Refrigerant oil
Apply the special refrigeration oil (accessories: packed with indoor unit) to the flare and the union seat surfaces.

4.Air purge
- Do not discharge the refrigerant into the atmosphere.
  Take care not to discharge refrigerant into the atmosphere during installation, reinstallation, or repairs to the refrigerant circuit.
- Use the vacuum pump for air purging for the purpose of environmental protection.

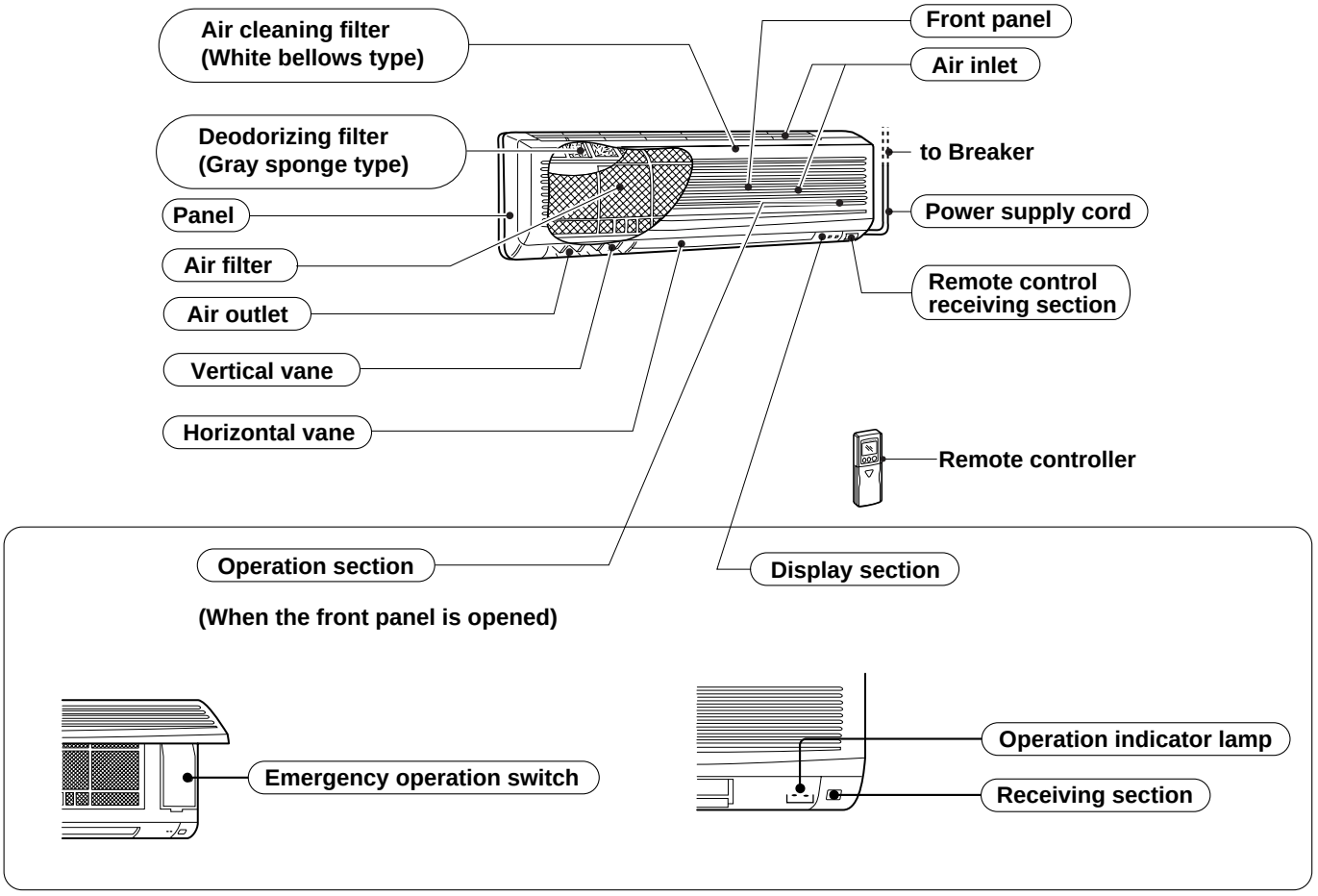
5.Additional charge
For additional charging, charge the refrigerant from liquid phase of the gas cylinder.
If the refrigerant is charged from the gas phase, composition change may occur in the refrigerant inside the cylinder and the outdoor unit. In this case, ability of the refrigerating cycle decreases or normal operation can be impossible. However, charging the liquid refrigerant all at once may cause the compressor to be locked. Thus, charge the refrigerant slowly.



2 PART NAMES AND FUNCTIONS

INDOOR UNIT

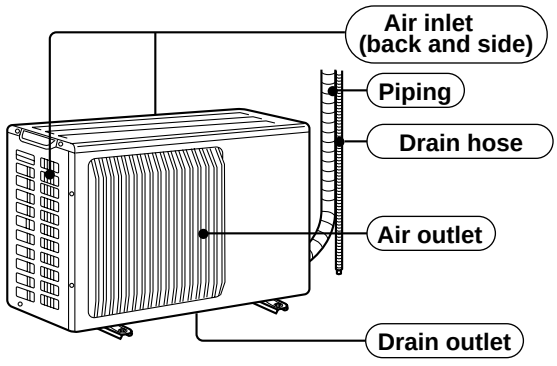
MSC-A07WV - E1
MSC-A09WV - E1
MSC-A12WV - E1

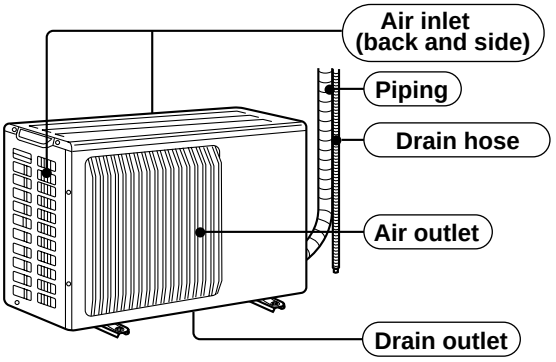


OUTDOOR UNIT

MU-A07WV - E1 **MUH-A07WV -** E1
MU-A09WV - E1 **MUH-A09WV -** E1
MU-A12WV - E1 **MUH-A12WV -** E1

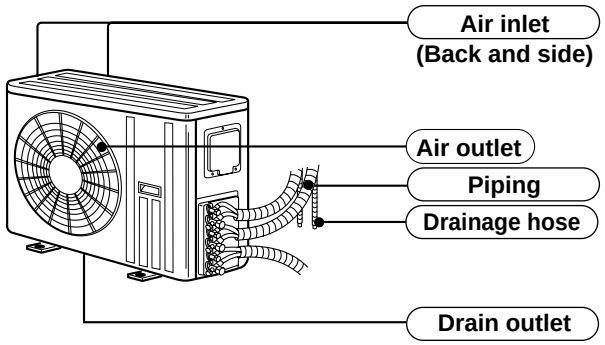
MUX-A10WV- E1



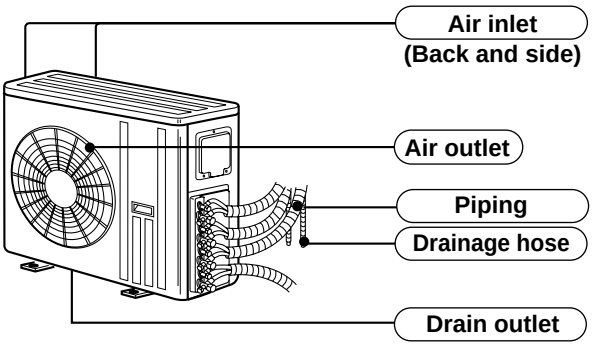


OUTDOOR UNIT

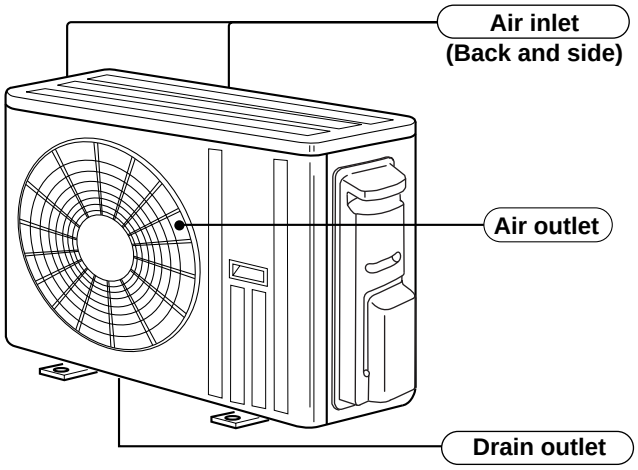
MUX-A19WV-E1 MUX-A25WV-E1
MUX-A20WV-E1



MUX-A26WV-E1



MXZ-A18WV-E1



ACCESSORIES

MSC-A07WV-E1
MSC-A09WV-E1
MSC-A12WV-E1

<Indoor unit>

①	Installation plate	1
②	Installation plate fixing screw 4 × 25 mm	5
③	Remote controller holder	1
④	Fixing screw for ③ 3.5 × 16 mm	2
⑤	Battery (AAA) for remote controller	2
⑥	Wireless remote controller	1
⑦	Felt tape (Used for left or left-rear piping)	1
⑧	Deodorizing filter	1
⑨	Air cleaning filter	1
⑩	Refrigerant oil	1

MUH-A07WV-E1
MUH-A09WV-E1
MUH-A12WV-E1

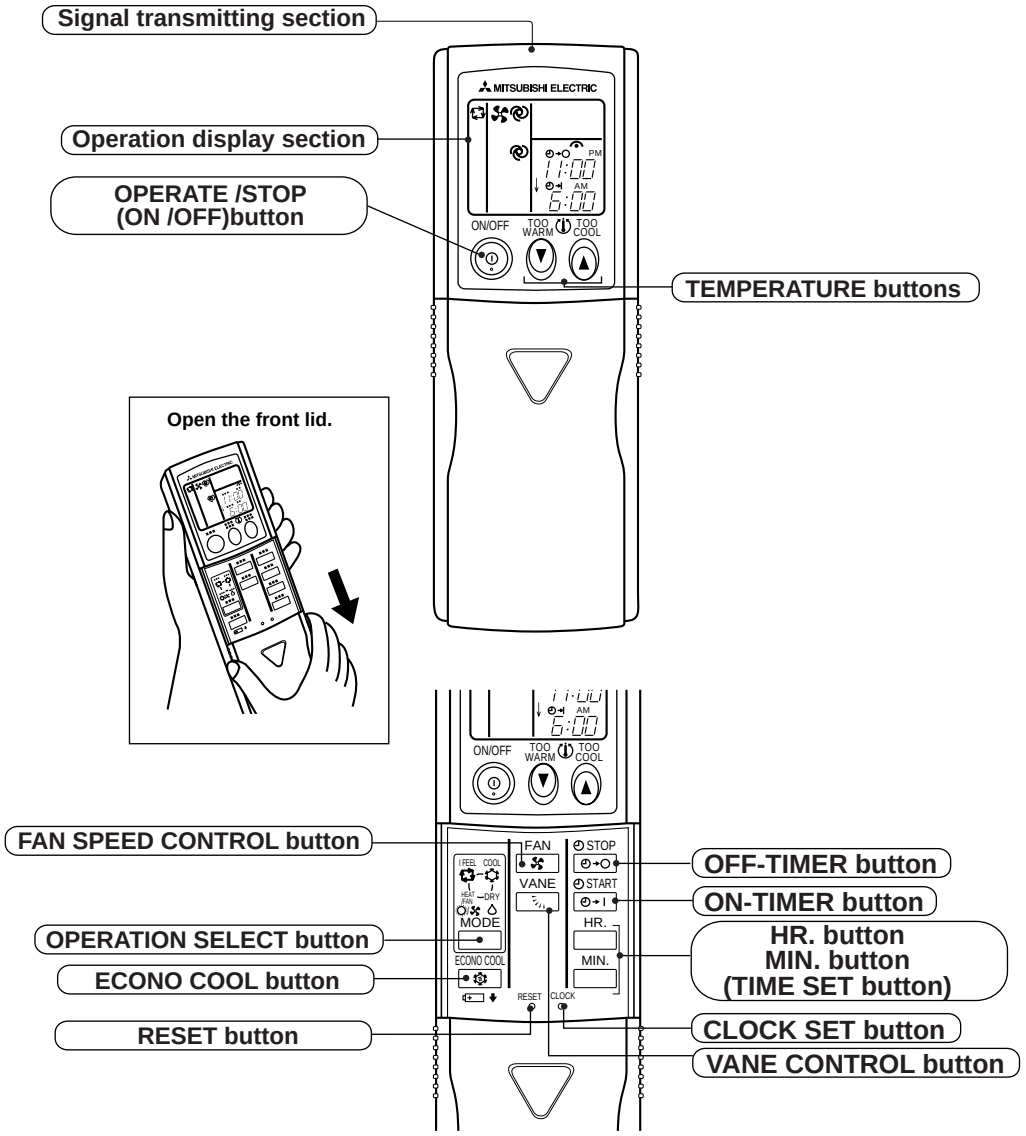
<Outdoor unit: MUH type>

⑪	Drain socket	1
⑫	Drain cap	2

MXZ-A18WV-E1

①	Drain socket	1
②	Drain cap	2

REMOTE CONTROLLER



3 INDOOR/ OUTDOOR CORRESPONDENCE TABLE

MSC-A07WV -E1 MSC-A09WV -E1 MSC-A12WV -E1

	OUTDOOR UNIT				
	MUX-A10WV- E1	**MUX-A19WV- E1**	**MUX-A20WV- E1**	**MUX-A25WV- E1**	**MUX-A26WV- E1**
Combination of the connectable indoor units	A: / B: } MSC-A07WV-E1	A: MSC-A12WV- E1 B: MSC-A07WV- E1	A: / B: / C: } MSC-A09WV- E1	A: / B: } MSC-A12WV- E1	A: / B: } MSC-A12WV- E1 C: / D: } MSC-A09WV- E1

MXZ-A18WV -E1

	OUTDOOR UNIT
	MXZ-A18WV-E1
Combination of the connectable indoor units	07+07
	07+09
	07+12
	09+09
	09+12
	12+12

❋There is no combination other than this table.

4 INDOOR UNITS COMBINATION

MXZ-A18WV -E1

NOTE: Electrical data is for outdoor unit only.

Indoor units combination	Cooling capacity (kW)			Outdoor unit power consumption (kW)	Current (A)	Power factor (%)
	Unit A	Unit B	Total		230V	
07	2.3	–	2.3 (0.9-2.95)	0.750 (0.225-1.000)	3.62	90
09	2.5	–	2.5 (0.9-3.30)	0.810 (0.225-1.070)	3.91	90
12	3.4	–	3.4 (0.9-4.00)	1.180 (0.220-1.450)	5.70	90
07+07	2.3	2.3	4.6 (1.49-5.30)	1.480 (0.370-2.060)	7.15	90
07+09	2.3	2.5	4.8 (1.49-5.40)	1.600 (0.370-2.070)	7.73	90
07+12	2.02	2.98	5.0 (1.51-5.60)	1.610 (0.365-2.100)	7.78	90
09+09	2.5	2.5	5.0 (1.51-5.55)	1.780 (0.370-2.105)	8.60	90
09+12	2.2	3.1	5.3 (1.53-5.80)	1.830 (0.365-2.110)	8.84	90
12+12	2.65	2.65	5.4 (1.55-6.00)	1.860 (0.370-2.130)	8.99	90

NOTE: Electrical data is for outdoor unit only.

Indoor units combination	Heating capacity (kW)			Outdoor unit power consumption (kW)	Current (A)	Power factor (%)
	Unit A	Unit B	Total		230V	
07	3.3	–	3.3 (0.9-4.0)	0.980 (0.225-1.115)	4.73	90
09	3.6	–	3.6 (0.9-4.5)	1.065 (0.225-1.195)	5.14	90
12	4.0	–	4.0 (0.9-4.8)	1.400 (0.220-1.680)	6.76	90
07+07	3.05	3.05	6.1 (1.53-6.70)	1.930 (0.300-2.070)	9.32	90
07+09	2.97	3.23	6.2 (1.53-6.80)	1.940 (0.300-2.040)	9.37	90
07+12	2.62	3.88	6.5 (1.55-7.00)	1.870 (0.295-1.980)	9.03	90
09+09	3.25	3.25	6.5 (1.55-7.0)	1.920 (0.295-2.010)	9.28	90
09+12	2.78	3.77	6.55 (1.56-7.1)	1.845 (0.295-1.950)	8.91	90
12+12	3.30	3.30	6.6 (1.58-7.2)	1.770 (0.290-1.850)	8.55	90

5 SPECIFICATION

Indoor model			MSC-A07WV - E1	MSC-A09WV - E1	MSC-A12WV - E1
Function			Cooling	Cooling	Cooling
Indoor unit power supply			Single phase 230V,50Hz	Single phase 230V,50Hz	Single phase 230V,50Hz
Capacity	Air flow(High/Med.※/Low※)	m³ /h	474/372※/276※	474/384※/306※	582/444※/324※
Electrical data	Power outlet	A	10	10	10
	Running current	A	0.17	0.17	0.19
	Power input	W	35	35	40
	Power factor	%	90	90	92
	Starting current	A	—	—	—
	Fan motor current	A	0.17	0.17	0.19
Fan motor	Model		RC4V19-LA	RC4V19-LA	RC4V19-KA
	Winding resistance(at 20℃)	Ω	WHT-BLK 413 BLK-RED 334	WHT-BLK 413 BLK-RED 334	WHT-BLK 316 BLK-RED 299
	Dimensions W×H×D	mm	815×278×217	815×278×217	815×278×217
	Weight	kg	9	9	10
	Air direction		5	5	5
Special remarks	Sound level(High/Med.※/Low※)	dB	36/31※/25※	36/31※/25※	40/33※/26※
	Fan speed (High/Med.※/Low※)	rpm	900/750※/600※	900/770※/650※	930/760※/600※
	Fan speed regulator		3	3	3
	Thermistor RT11(at 25℃)	kΩ	10	10	10
	Thermistor RT12(at 25℃)	kΩ	10	10	10
Outdoor model			MU-A07WV - E1	MU-A09WV - E1	MU-A12WV - E1
Outdoor unit power supply			Single phase 230V,50Hz	Single phase 230V,50Hz	Single phase 230V,50Hz
Capacity	Capacity	kW	2.3	2.55	3.45
	Dehumidification	ℓ /h	0.9	1.1	1.6
	Outdoor air flow	m³ /h	1,686	1,686	1,914
Electrical data	Power outlet	A	10	10	10
	Running current	A	2.98	3.26	4.91
	Power input	W	675	745	1,100
	Auxiliary heater	A(kW)	—	—	—
	Power factor	%	98	99	97
	Starting current	A	23	24	29
	Compressor motor current	A	2.76	3.04	4.60
	Fan motor current	A	0.22	0.22	0.31
Coefficient of performance(C.O.P)			3.24	3.27	3.03
Compressor	Model		RN092VHSHT	RN099VHSHT	RN135VHSHT
	Output	W	600	700	900
	Winding resistance(at 20℃)	Ω	C-R 3.87 C-S 6.14	C-R 3.40 C-S 4.56	C-R 2.79 C-S 3.36
Fan motor	Model		RA6V23-FC	RA6V23-FC	RA6V33-DC
	Winding resistance(at 20℃)	Ω	WHT-BLK 353 BLK-RED 321	WHT-BLK 353 BLK-RED 321	WHT-BLK 301 BLK-RED 332
	Dimensions W×H×D	mm	780×540×255	780×540×255	780×540×255
	Weight	kg	34	34	36
Special remarks	Sound level	dB	45	45	49
	Fan speed	rpm	735	735	825
	Fan speed regulator		1	1	1
	Refrigerant filling capacity (R410A)	kg	0.75	0.80	0.83
	Refrigerating oil (Model)	cc	350 (NEO22)	350 (NEO22)	620 (NEO22)

NOTE: Test conditions are based on ISO 5151.
Cooling : Indoor DB27°C WB19°C
Outdoor DB35°C WB24°C
Indoor-Outdoor piping length 5m
※ Reference value

Indoor model			MSC-A07WV - E1		MSC-A09WV - E1		MSC-A12WV - E1	
Function			Cooling	Heating	Cooling	Heating	Cooling	Heating
Indoor unit power supply			Single phase 230V,50Hz		Single phase 230V,50Hz		Single phase 230V,50Hz	
Capacity	Air flow(High/Med.※/Low※)	m³ /h	474/372※/276※	510/420※/342※	474/384※/306※	588/456※/342※	582/444※/324※	606/498※/396※
Electrical data	Power outlet	A	10		10		10	
	Running current	A	0.17		0.17		0.19	
	Power input	W	35		35		40	
	Power factor	%	90		90		92	
	Starting current	A	—		—		—	
	Fan motor current	A	0.17		0.17		0.19	
Fan motor	Model		RC4V19-LA		RC4V19-LA		RC4V19-KA	
	Winding resistance(at 20℃)	Ω	WHT-BLK 413 BLK-RED 334		WHT-BLK 413 BLK-RED 334		WHT-BLK 316 BLK-RED 299	
	Dimensions W×H×D	mm	815×278×217		815×278×217		815×278×217	
	Weight	kg	9		9		10	
	Air direction		5		5		5	
Special remarks	Sound level(High/Med.※/Low※)	dB	36/31※/25※	36/31※/25※	36/31※/25※	39/32※/25※	40/33※/26※	39/33※/26※
	Fan speed(High/Med.※/Low※)	rpm	900/750※/600※	950/820※/700※	900/770※/650※	1,050/870※/700※	930/760※/600※	960/830※/700※
	Fan speed regulator		3		3		3	
	Thermistor RT11(at 25℃)	kΩ	10		10		10	
	Thermistor RT12(at 25℃)	kΩ	10		10		10	
Outdoor model			MUH-A07WV - E1		MUH-A09WV - E1		MUH-A12WV - E1	
Outdoor unit power supply			Single phase 230V,50Hz		Single phase 230V,50Hz		Single phase 230V,50Hz	
Capacity	Capacity	kW	2.3	2.5	2.55	3.05	3.4	3.9
	Dehumidification	ℓ /h	0.9	—	1.1	—	1.6	—
	Outdoor air flow	m³ /h	1,686		1,710		1,710	
Electrical data	Power outlet	A	10		10		10	
	Running current	A	2.98	2.86	3.26	3.52	4.51	4.61
	Power input	W	675	655	745	805	1,020	1,040
	Auxiliary heater	A(kW)	—		—		—	
	Power factor	%	98	100	99	99	98	98
	Starting current	A	23		24		29	
	Compressor motor current	A	2.76	2.64	2.95	3.21	4.20	4.30
	Fan motor current	A	0.22		0.31		0.31	
Coefficient of performance (C.O.P)			3.24	3.62	3.27	3.69	3.21	3.61
Compressor	Model		RN092VHSHT		RN104VHSHT		RN135VHSHT	
	Output	W	600		700		900	
	Winding resistance (at 20℃)	Ω	C-R 3.87 C-S 6.14		C-R 3.40 C-S 4.56		C-R 2.79 C-S 3.36	
Fan motor	Model		RA6V23-FB		RA6V33-DB		RA6V33-DB	
	Winding resistance (at 20℃)	Ω	WHT-BLK 353 BLK-RED 321		WHT-BLK 301 BLK-RED 332		WHT-BLK 301 BLK-RED 332	
	Dimensions W×H×D	mm	780×540×255		780×540×255		780×540×255	
	Weight	kg	35		38		40	
Special remarks	Sound level	dB	47		49		49	
	Fan speed	rpm	735		825		825	
	Fan speed regulator		1		1		1	
	Refrigerant filling capacity (R410A)	kg	0.75		1.10		1.15	
	Refrigerating oil (Model)	cc	350 (NEO22)		350 (NEO22)		620 (NEO22)	
	Thermistor RT61 (at 0℃)	kΩ	33.18		33.18		33.18	

NOTE: Test conditions are based on ISO 5151.

Cooling : Indoor DB27°C WB19°C
Outdoor DB35°C WB24°C

Heating : Indoor DB20°C
Outdoor DB 7°C/WB 6°C

Indoor-Outdoor piping length 5m

※ Reference value

Indoor model			MSC-A07WV - E1		MSC-A07WV - E1		MSC-A12WV - E1
Function			Cooling		Cooling		Cooling
Indoor unit power supply			Single phase 230V,50Hz		Single phase 230V,50Hz		Single phase 230V,50Hz
Capacity	Air flow (High/Med.※/Low※)	m³ /h	474/372※/276※		474/372※/276※		582/444※/324※
Electrical data	Power outlet	A	10		10		10
	Running current	A	0.17		0.17		0.19
	Power input	W	35		35		40
	Power factor	%	90		90		92
	Starting current	A	—		—		—
	Fan motor current	A	0.17		0.17		0.19
Fan motor	Model		RC4V19-LA		RC4V19-LA		RC4V19-KA
	Winding resistance(at 20℃)	Ω	WHT-BLK 413 BLK-RED 334		WHT-BLK 413 BLK-RED 334		WHT-BLK 316 BLK-RED 299
	Dimensions W×H×D	mm	815×278×217		815×278×217		815×278×217
	Weight	kg	9		9		10
	Air direction		5		5		5
Special remarks	Sound level (High/Med.※/Low※)	dB	36/31※/25※		36/31※/25※		40/33※/26※
	Fan speed (High/Med.※/Low※)	rpm	900/750※/600※		900/750※/600※		930/760※/600※
	Fan speed regulator		3		3		3
	Thermistor RT11 (at 25℃)	kΩ	10		10		10
	Thermistor RT12 (at 25℃)	kΩ	10		10		10

Outdoor model			MUX-A10WV - E1		MUX-A19WV - E1		
Outdoor unit power supply			Single phase 230V,50Hz		Single phase 230V,50Hz		
Indoor unit No.			Single A or B	Double A+B	Single A	Single B	Double A+B
Capacity	Capacity	kW	2.4	1.4×2	3.5	2.4	3.5+2.4
	Dehumidification	ℓ /h	0.9	0.2×2	1.4	0.9	1.4+0.9
	Outdoor air flow	m³ /h	1,914		2,460		
Electrical data	Power outlet	A	10		20		
	Running current	A	3.20	3.25	5.73	3.51	8.96
	Power input	W	725	730	1,280	785	2,005
	Auxiliary heater	A(kW)	—		—		
	Power factor	%	98.5	97.7	97.1	97.2	97.3
	Starting current	A	21		48		
	Compressor motor current	A	2.91	2.96	5.16	2.94	8.39
	Fan motor current	A	0.29		0.57		
Coefficient of performance (C.O.P)			3.16	3.50	2.65	2.93	2.84
Compressor	Model		RN092VHSHT		MC1 : RN145VHSHT, MC2 : RN092VHSHT		
	Output	W	600		MC1 : 1,000, MC2 : 600		
	Winding resistance (at 20℃)	Ω	C-R 3.87 C-S 6.14		MC1 : C-R 2.43, C-S 3.80 , MC2 : C-R 3.87, C-S 6.14		
Fan motor	Model		RA6V33-FC		RA6V60-GA		
	Winding resistance (at 20℃)	Ω	WHT-BLK 223 BLK-RED 221		WHT-BLK 90 BLK-RED 146		
	Dimensions W×H×D	mm	780×540×255		840×640×330		
	Weight	kg	35		66		
Special remarks	Sound level	dB	49		52		
	Fan speed	rpm	825		730		
	Fan speed regulator		1		1		
	Refrigerant filling capacity (R410A)	kg	0.90 (Room A+B)		1.00 (Room A) 0.80 (Room B)		
	Refrigerating oil (Model)	cc	350 (NEO22)		MC1 : 620 (NEO22), MC2 : 350 (NEO22)		

NOTE: Test conditions are based on ISO 5151.

Cooling : Indoor DB27°C WB19°C
Outdoor DB35°C WB24°C

Heating : Indoor DB20°C
Outdoor DB 7°C/WB 6°C

Indoor-Outdoor piping length 5m

※ Reference value

Indoor model			**MSC-A09WV -** E1				
Function			Cooling				
Indoor unit power supply			Single phase 230V,50Hz				
Capacity	Air flow (High/Med.※/Low※)	m³ /h	474/384※/306※				
Electrical data	Power outlet	A	10				
	Running current	A	0.17				
	Power input	W	35				
	Power factor	%	90				
	Starting current	A	—				
	Fan motor current	A	0.17				
Fan motor	Model		RC4V19-LA				
	Winding resistance (at 20℃)	Ω	WHT-BLK 413 BLK-RED 334				
	Dimensions W×H×D	mm	815×278×217				
	Weight	kg	9				
	Air direction		5				
Special remarks	Sound level (High/Med.※/Low※)	dB	36/31※/25※				
	Fan speed (High/Med.※/Low※)	rpm	900/770※/650※				
	Fan speed regulator		3				
	Thermistor RT11 (at 25℃)	kΩ	10				
	Thermistor RT12 (at 25℃)	kΩ	10				
Outdoor model			**MUX-A20WV -** E1				
Outdoor unit power supply			Single phase 230V,50Hz				
Indoor unit No.			Single A	Single B or C	Double A+B or A+C	Double B+C	Triple A+B+C
Capacity	Capacity	kW	2.6	2.9	2.6+2.8	1.75×2	2.5+1.75×2
	Dehumidification	ℓ /h	0.9	1.2	0.9+1.1	0.3×2	0.8+0.3×2
	Outdoor air flow	m³ /h	2,460				
Electrical data	Power outlet	A	20				
	Running current	A	3.64	4.86	8.18	4.86	8.41
	Power input	W	815	1,075	1,850	1,090	1,885
	Auxiliary heater	A(kW)	—				
	Power factor	%	97.3	96.2	98.3	97.5	97.5
	Starting current	A	47				
	Compressor motor current	A	3.07	4.29	7.61	4.29	7.84
	Fan motor current	A	0.57				
Coefficient of performance (C.O.P)			3.06	2.61	2.81	3.02	3.02
Compressor	Model		MC1 : RN099VHSHT, MC2 : RN125VHSHT				
	Output	W	MC1 : 650, MC2 : 800				
	Winding resistance (at 20℃)	Ω	MC1 : C-R 3.40, C-S 4.56 , MC2 : C-R 2.86, C-S 5.72				
Fan motor	Model		RA6V60-GA				
	Winding resistance (at 20℃)	Ω	WHT-BLK 90 BLK-RED 146				
	Dimensions W×H×D	mm	840×640×330				
	Weight	kg	65				
Special remarks	Sound level	dB	52				
	Fan speed	rpm	730				
	Fan speed regulator		1				
	Refrigerant filling capacity (R410A)	kg	0.80 (Room A) 1.00 (Room B+C)				
	Refrigerating oil (Model)	cc	MC1 : 350 (NEO22), MC2 : 350 (NEO22)				

NOTE: Test conditions are based on ISO 5151.

Cooling : Indoor DB27°C WB19°C
Outdoor DB35°C WB24°C

Heating : Indoor DB20°C
Outdoor DB 7°C/WB 6°C

Indoor-Outdoor piping length 5m

※ Reference value

Indoor model			**MSC-A12WV -** E1 (Unit A ,B)	
Function			Cooling	
Indoor unit power supply			Single phase 230V,50Hz	
Capacity	Air flow (High/Med.※/Low※)	m³ /h	582/444※/324※	
Electrical data	Power outlet	A	10	
	Running current	A	0.19	
	Power input	W	40	
	Power factor	%	92	
	Starting current	A	—	
	Fan motor current	A	0.19	
Fan motor	Model		RC4V19-KA	
	Winding resistance(at20℃)	Ω	WHT-BLK 316 BLK-RED 299	
	Dimensions W×H×D	mm	815×278×217	
	Weight	kg	10	
	Air direction		5	
Special remarks	Sound level (High/Med.※/Low※)	dB	40/33※/26※	
	Fan speed (High/Med.※/Low※)	rpm	930/760※/600※	
	Fan speed regulator		3	
	Thermistor RT11 (at 25℃)	kΩ	10	
	Thermistor RT12 (at 25℃)	kΩ	10	
Outdoor model			**MUX-A25WV -** E1	
Outdoor unit power supply			Single phase 230V,50Hz	
Indoor unit No.			Single A or B	Double A+B
Capacity	Capacity	kW	3.5	3.5×2
	Dehumidification	ℓ /h	1.4	1.4×2
	Outdoor air flow	m³ /h	2,460	
Electrical data	Power outlet	A	20	
	Running current	A	5.88	11.49
	Power input	W	1,300	2,540
	Auxiliary heater	A(kW)	—	
	Power factor	%	96.1	96.1
	Starting current	A	54	
	Compressor motor current	A	5.31	10.92
	Fan motor current	A	0.57	
Coefficient of performance (C.O.P)			2.61	2.67
Compressor	Model		MC1 : RN145VHSHT, MC2 : RN145VHSHT	
	Output	W	MC1 : 1,000, MC2 : 1,000	
	Winding resistance (at 20℃)	Ω	MC1 : C-R 2.43, C-S 3.80 , MC2 : C-R 2.43, C-S 3.80	
Fan motor	Model		RA6V60-GA	
	Winding resistance (at 20℃)	Ω	WHT-BLK 90 BLK-RED 146	
	Dimensions W×H×D	mm	840×640×330	
	Weight	kg	68	
Special remarks	Sound level	dB	52	
	Fan speed	rpm	730	
	Fan speed regulator		1	
	Refrigerant filling capacity (R410A)	kg	0.95 (Room A) 0.95 (Room B)	
	Refrigerating oil (Model)	cc	MC1 : 620 (NEO22), MC2 : 620 (NEO22)	

NOTE: Test conditions are based on ISO 5151.

Cooling : Indoor DB27°C WB19°C
Outdoor DB35°C WB24°C

Heating : Indoor DB20°C
Outdoor DB 7°C/WB 6°C

Indoor-Outdoor piping length 5m

※ Reference value

Indoor model			MSC-A09WV - E1 (Unit C ,D)	MSC-A12WV - E1 (Unit A ,B)
Function			Cooling	Cooling
Indoor unit power supply			Single phase 230V,50Hz	Single phase 230V,50Hz
Capacity	Air flow (High/Med./Low)	m³ /h	474/384※/306※	582/444※/324※
Electrical data	Power outlet	A	10	10
	Running current	A	0.17	0.19
	Power input	W	35	40
	Power factor	%	90	92
	Starting current	A	—	—
	Fan motor current	A	0.17	0.19
Fan motor	Model		RC4V19-LA	RC4V19-KA
	Winding resistance (at 20℃)	Ω	WHT-BLK 413 BLK-RED 334	WHT-BLK 316 BLK-RED 299
	Dimensions W×H×D	mm	815×278×217	815×278×217
	Weight	kg	9	10
	Air direction		5	5
Special remarks	Sound level (High/Med./Low)	dB	36/31※/25※	40/33※/26※
	Fan speed (High/Med./Low)	rpm	900/770※/650※	930/760※/600※
	Fan speed regulator		3	3
	Thermistor RT11 (at 25℃)	kΩ	10	10
	Thermistor RT12 (at 25℃)	kΩ	10	10

Outdoor model			MUX-A26WV - E1							
Outdoor unit power supply			Single phase 230V,50Hz							
Indoor unit No.			Single A or B	Single C or D	Double A+B	Double A+C or A+D or B+C or B+D	Double C+D	Triple A+B+C or A+B+D	Triple A+C+D or B+C+D	Four A+B+C+D
Capacity	Capacity	kW	3.4	2.75	1.95×2	3.4+2.7	1.7×2	1.95×2+2.8	3.4+1.7×2	1.95×2+1.7×2
	Dehumidification	ℓ /h	1.2	1.1	0.2×2	1.2+1.1	0.3×2	0.2×2+1.1	1.2+0.3×2	0.2×2+0.3×2
	Outdoor air flow	m³ /h	2,760							
Electrical data	Power outlet	A	20							
	Running current	A	5.28	4.54	5.46	9.57	4.78	9.61	9.66	9.75
	Power input	W	1,180	1,015	1,210	2,095	1,060	2,105	2,140	2,210
	Auxiliary heater	A(kW)	—							
	Power factor	%	97.2	97.2	96.4	95.2	96.4	95.2	96.3	98.6
	Starting current	A	52							
	Compressor motor current	A	4.75	4.01	4.93	9.04	4.25	9.08	9.13	9.22
	Fan motor current	A	0.53							
Coefficient of performance (C.O.P)			2.79	2.62	3.02	2.81	3.01	3.02	3.02	3.09
Compressor	Model		MC1 : RN145VHSHT, MC2 : RN125VHSHT							
	Output	W	MC1 : 1,000, MC2 : 800							
	Winding resistance (at 20℃)	Ω	MC1 : C-R 2.43, C-S 3.80 , MC2 : C-R 2.86, C-S 5.72							
Fan motor	Model		RA6V60-FA							
	Winding resistance (at 20℃)	Ω	WHT-BLK 79 BLK-RED 80							
	Dimensions W×H×D	mm	840×850×330							
	Weight	kg	76							
Special remarks	Sound level	dB	52							
	Fan speed	rpm	730							
	Fan speed regulator		1							
	Refrigerant filling capacity (R410A)	kg	1.05 (Room A+B) 1.05 (Room C+D)							
	Refrigerating oil (Model)	cc	MC1 : 620 (NEO22), MC2 : 350 (NEO22)							

NOTE: Test conditions are based on ISO 5151.

Cooling : Indoor DB27°C WB19°C
Outdoor DB35°C WB24°C

Heating : Indoor DB20°C
Outdoor DB 7°C/WB 6°C

Indoor-Outdoor piping length 5m

※ Reference value

	Outdoor model		**MXZ-A18WV -** E1	
	Outdoor unit power supply		Single phase 230V,50Hz	
System	Indoor units number		2	
	Indoor units total capacity (Connectable)		Total model name 24	
	indoor units total capacity (Simultaneous operation)		Total model name 24	
	Piping total length	m	Max. 30 (chargeless 20)	
	Connecting pipe length	m	Max. 20	
	Height difference (Indoor ~ Outdoor)	m	10	
	Height difference (Indoor ~ Indoor)	m	10	
	Function		Cooling	Heating
Capacity	Capacity	kW	5.4 (1.55~6.0)	6.6 (1.58~7.2)
	Dehumidification	ℓ /h	—	—
	Outdoor air flow	m³ /h	2,460	
Electrical data	Power outlet	A	20	
	Running current	A	8.98	8.55
	Power input	W	1,860 (370~2,130)	1,770 (290~1,850)
	Auxiliary heater	A(kW)	—	
	Crankcase heater	W	—	
	Power factor	%	90.0	
	Starting current	A	8.98	
	Compressor motor current	A	8.41	7.98
	Fan motor current	A	0.57	
	Coefficient of performance (C.O.P)		2.90	3.73
Compressor	Model		SNV-092FJYH (ROTARY)	
	Output	W	1,450	
	Winding resistance (at 20℃)	Ω	U-V 2.56 V-W 2.56 W-U 2.56	
Fan motor	Model		RA6V49-AA	
	Winding resistance (at 20℃)	Ω	WHT-BLK 139.9 BLK-YLW 34.2 BLK-RED 205.3	
	Dimensions W×H×D	mm	840(+69)×640×330	
	Weight	kg	52	
Special remarks	Sound level (Hi)	dB	49	50
	Fan speed (Hi)	rpm	725	
	Fan speed regulator		2	
	Refrigerant filling capacity (R410A)	kg	1.75	
	Refrigerating oil (Model)	cc	450 (NE022)	
	Thermistor RT61	kΩ	13.4 (at 100℃)	
	Thermistor RT62	kΩ	10.0 (at 25℃)	
	Thermistor RT63	kΩ	10.0 (at 25℃)	
	Thermistor RT6A,6B	kΩ	10.0 (at 25℃)	
	Thermistor RT65	kΩ	17.0 (at 50℃)	
	Thermistor RT68	kΩ	10.0 (at 25℃)	

NOTE: Test conditions are based on ISO 5151 (Refrigerant piping length (one way) :5m

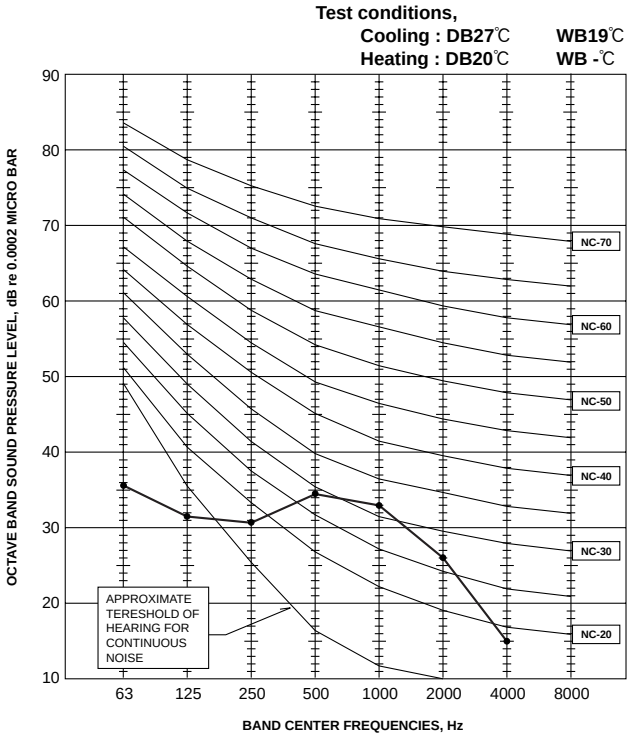
✻1 Electrical data is for only outdoor unit.

TEST CONDITIONS COOLING INDOOR DB27.0°C WB19.0°C
OUTDOOR DB35.0°C WB24.0°C
HEATING INDOOR DB20.0°C
OUTDOOR DB 7.0°C WB 6.0°C

6 NOISE CRITERIA CURVES

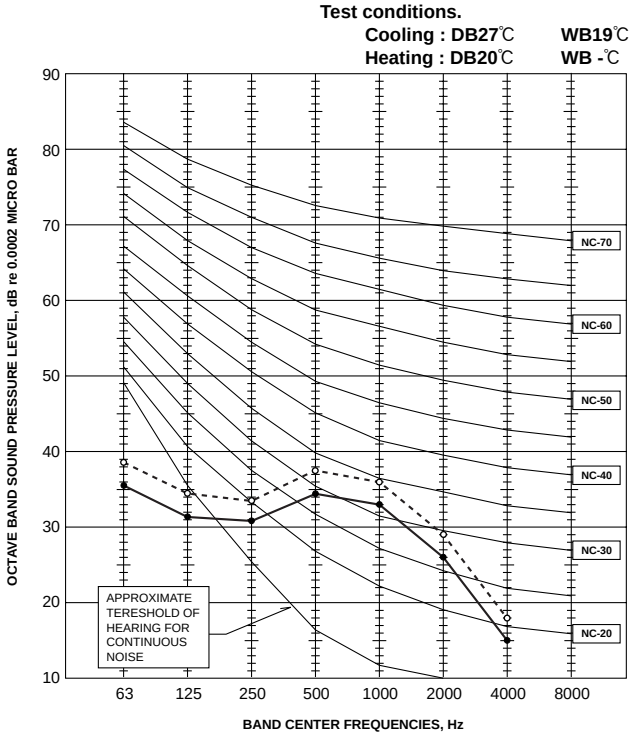
MSC-A07WV- E1

FAN SPEED	FUNCTION	SPL(dB(A))	LINE
High	COOL	36	●——●
	HEAT		



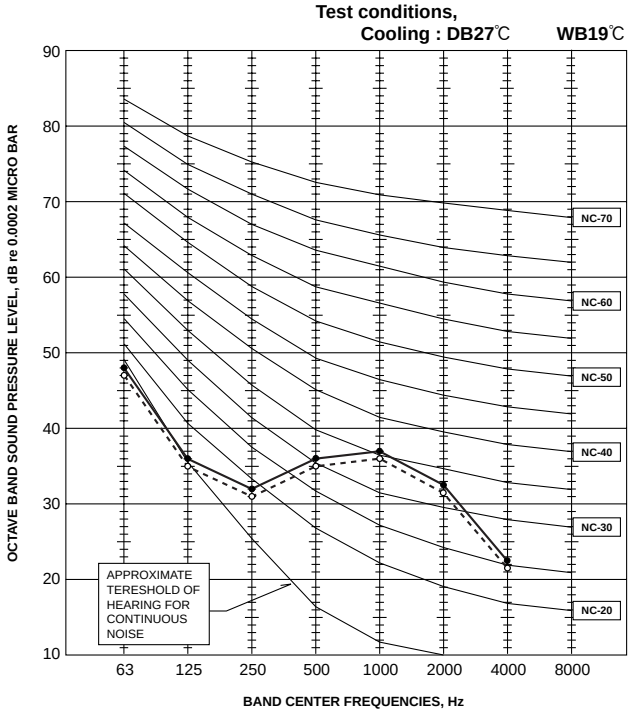
MSC-A09WV- E1

FAN SPEED	FUNCTION	SPL(dB(A))	LINE
High	COOL	36	●——●
	HEAT	39	○- - -○



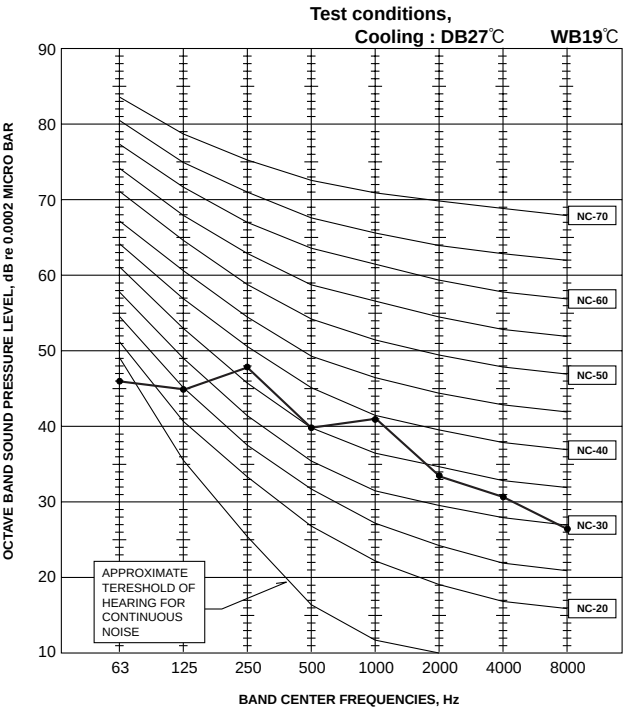
MSC-A12WV- E1

FAN SPEED	FUNCTION	SPL(dB(A))	LINE
High	COOL	40	●——●
	HEAT	39	○- - -○



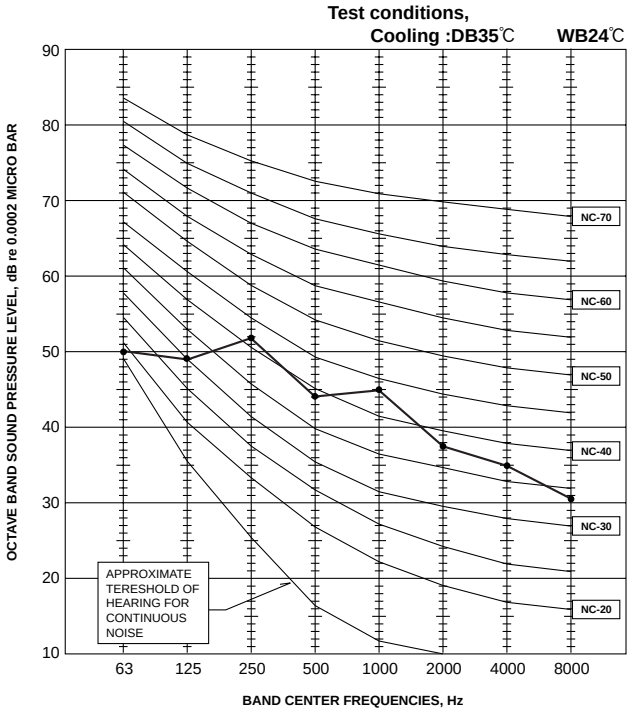
MU-A07WV- E1
MU-A09WV- E1

FUNCTION	SPL(dB(A))	LINE
COOL	45	●——●



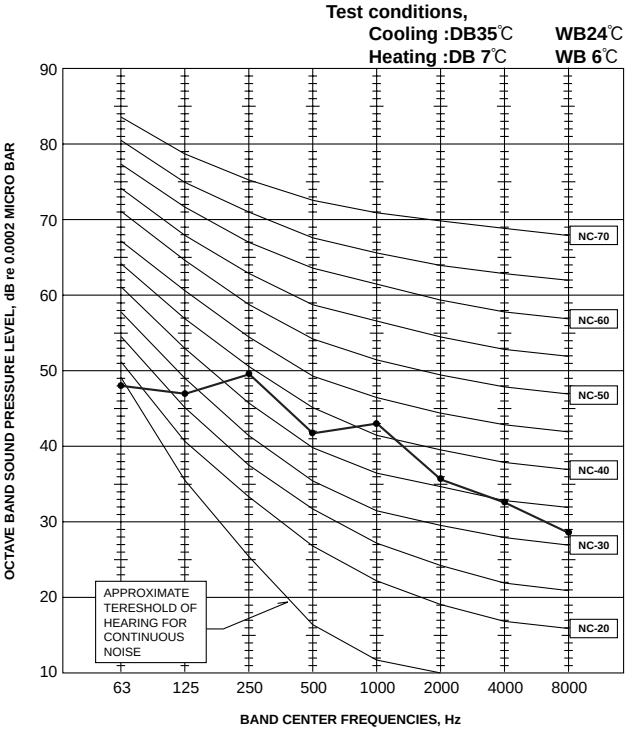
MU-A12WV- E1

FUNCTION	SPL(dB(A))	LINE
COOL	49	



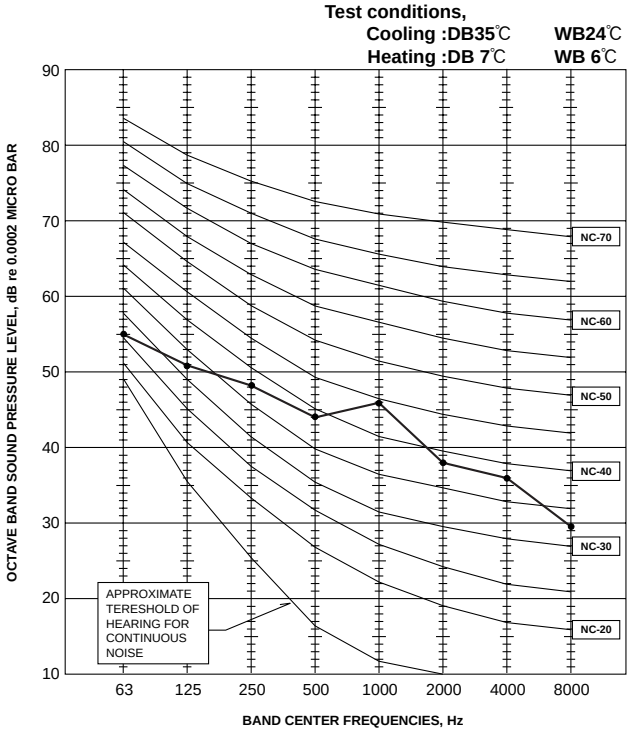
MUH-A07WV- E1

FUNCTION	SPL(dB(A))	LINE
COOL	47	
HEAT		



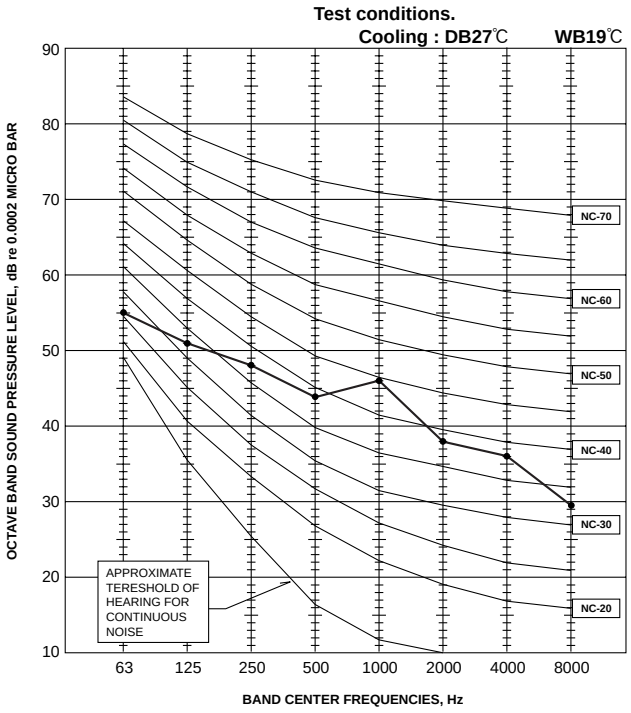
MUH-A09WV- E1
MUH-A12WV- E1

FUNCTION	SPL(dB(A))	LINE
COOL	49	
HEAT		



MUX-A10WV- E1

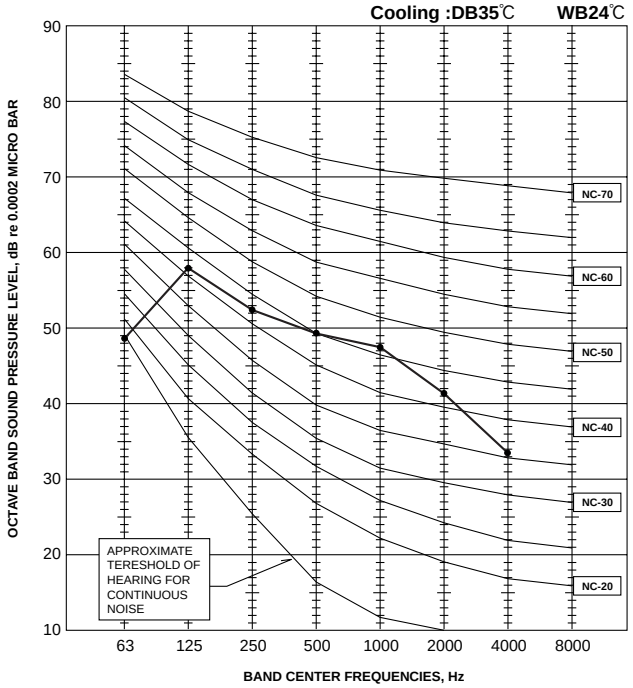
FUNCTION	SPL(dB(A))	LINE
COOL	49	



MUX-A19WV - E1
MUX-A20WV - E1
MUX-A25WV - E1

FUNCTION	SPL(dB(A))	LINE
COOL	52	●—●

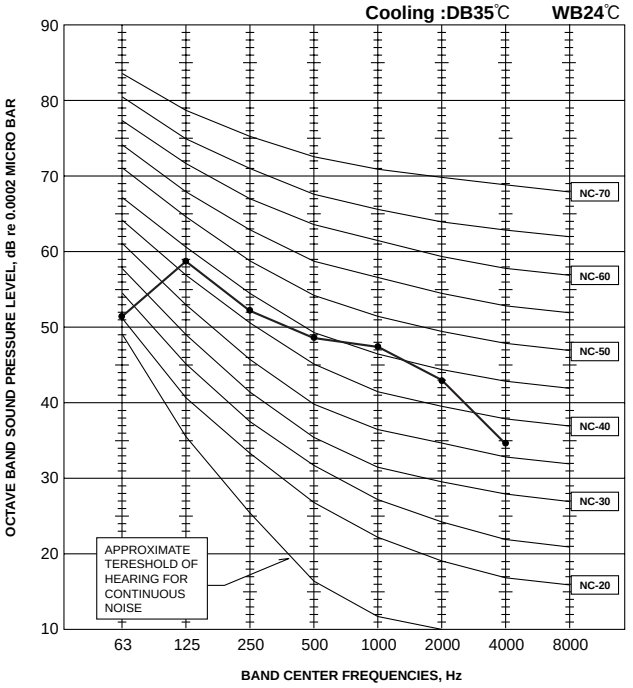
Test conditions.
Cooling :DB35℃ WB24℃



MUX-A26WV - E1

FUNCTION	SPL(dB(A))	LINE
COOL	52	●—●

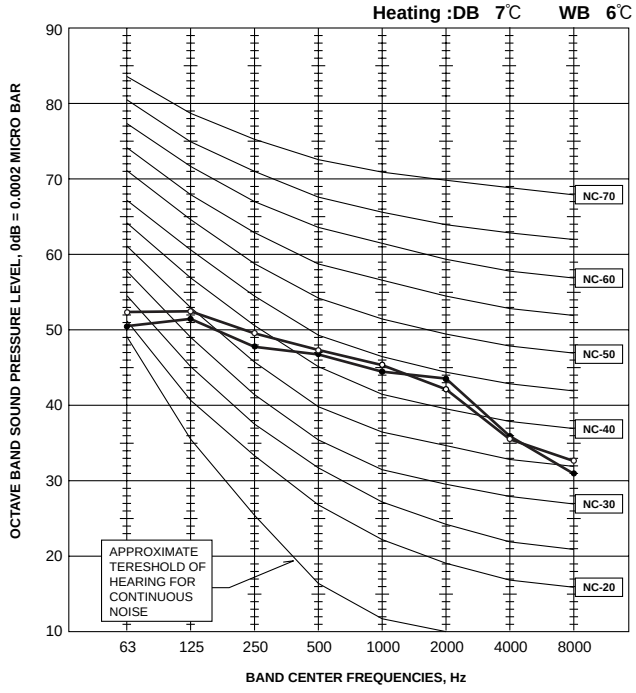
Test conditions.
Cooling :DB35℃ WB24℃



MXZ-A18WV - E1

NOTCH	SPL(dB(A))	LINE
Cooling	49	●—●
Heating	50	○—○

Test conditions.
Cooling :DB 35℃ WB 24℃
Heating :DB 7℃ WB 6℃

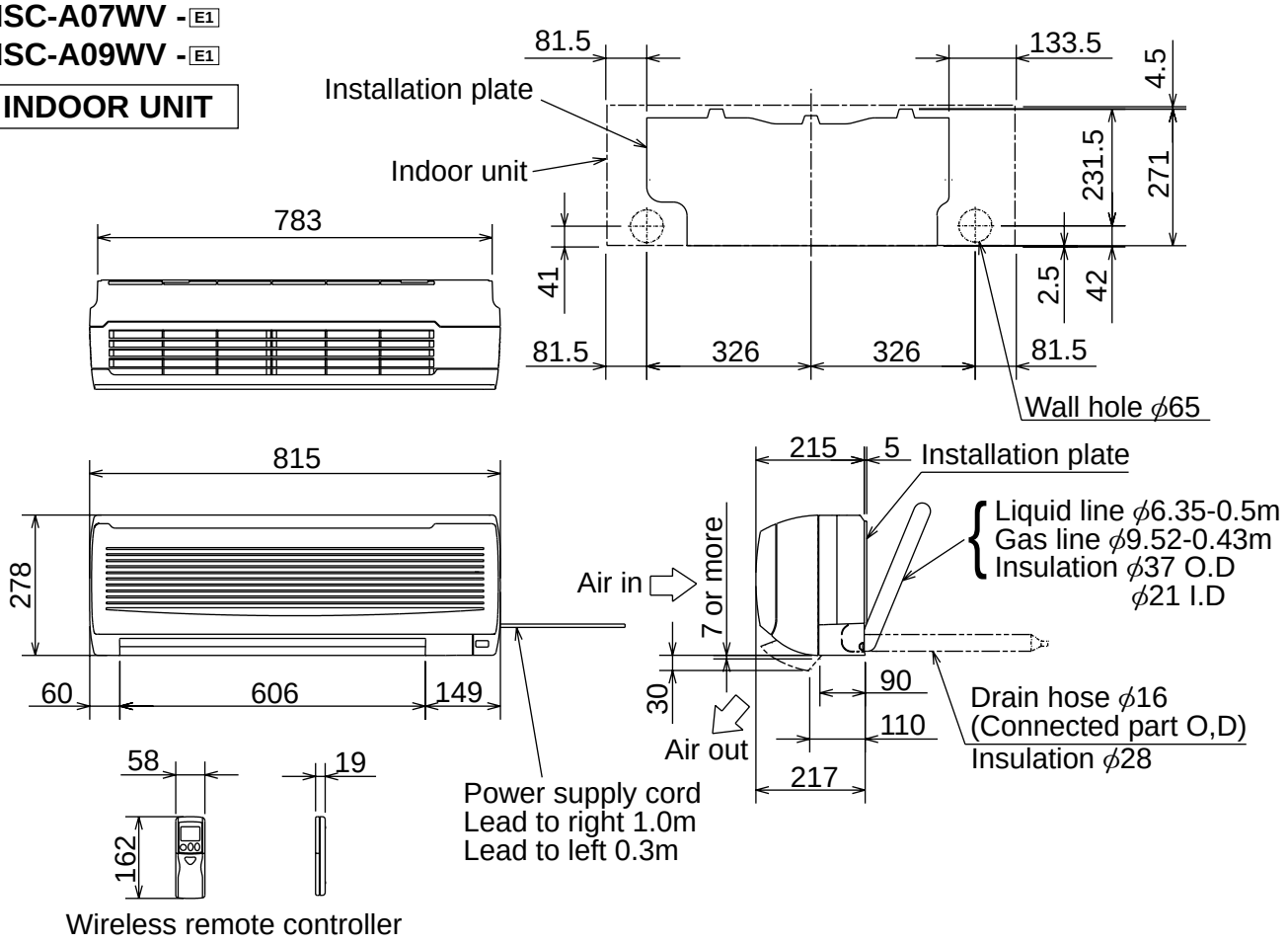


7 OUTLINES AND DIMENSIONS

Unit: mm

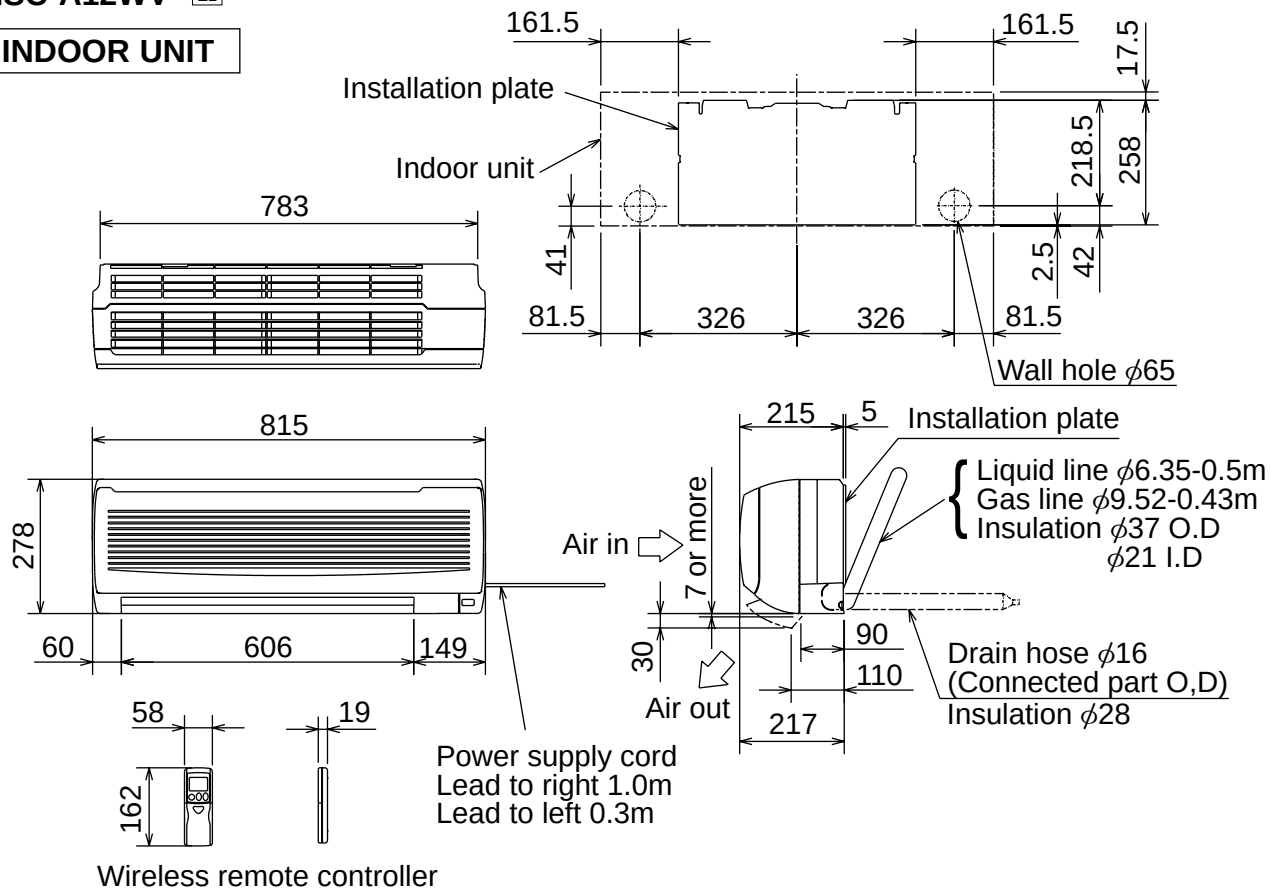
MSC-A07WV - E1
MSC-A09WV - E1

INDOOR UNIT



MSC-A12WV - E1

INDOOR UNIT

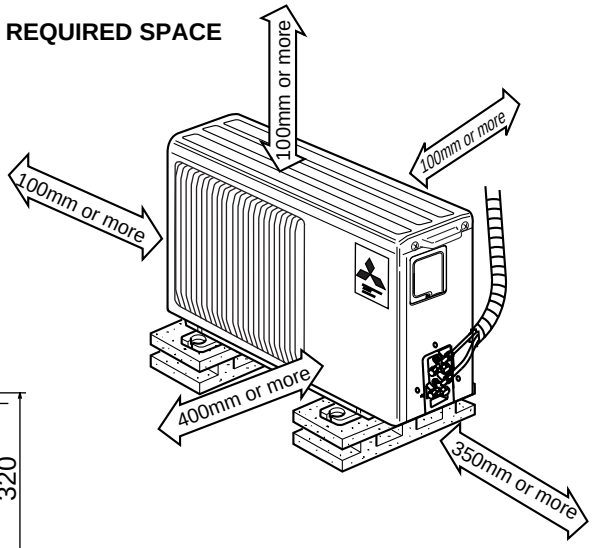


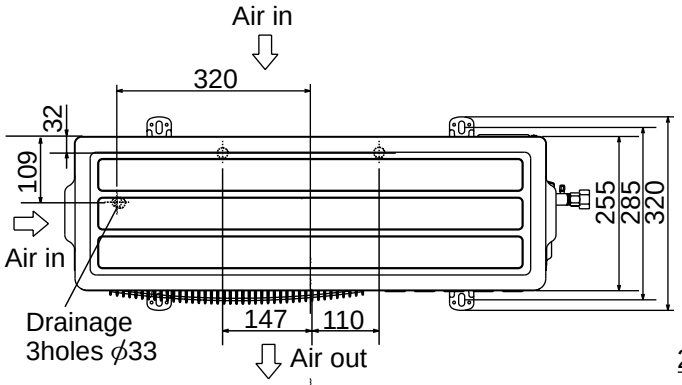
Unit: mm

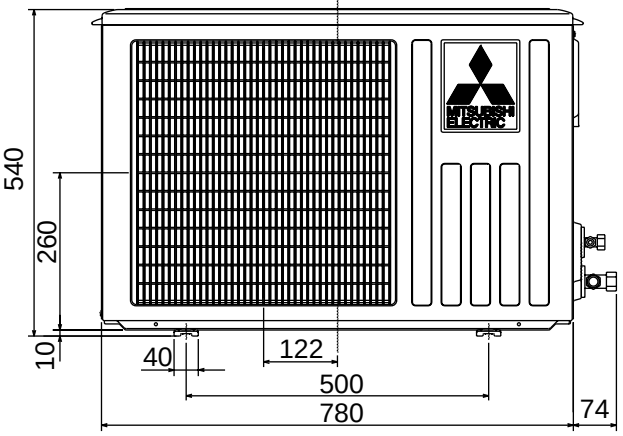
MU-A07WV -E1 MUH-A07WV -E1
MU-A09WV -E1 MUH-A09WV -E1
MU-A12WV -E1 MUH-A12WV -E1

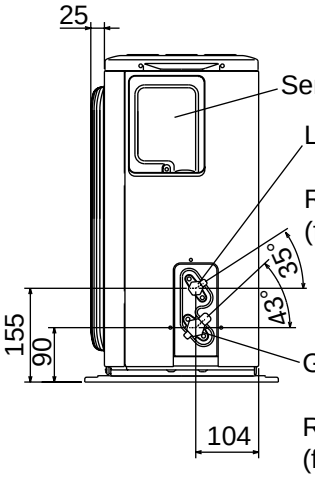
OUTDOOR UNIT

REQUIRED SPACE









Service panel

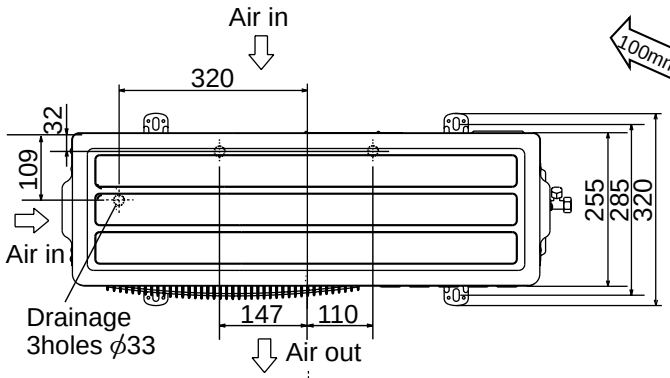
Liquid refrigerant pipe joint
Refrigerant pipe (flared) ϕ6.35

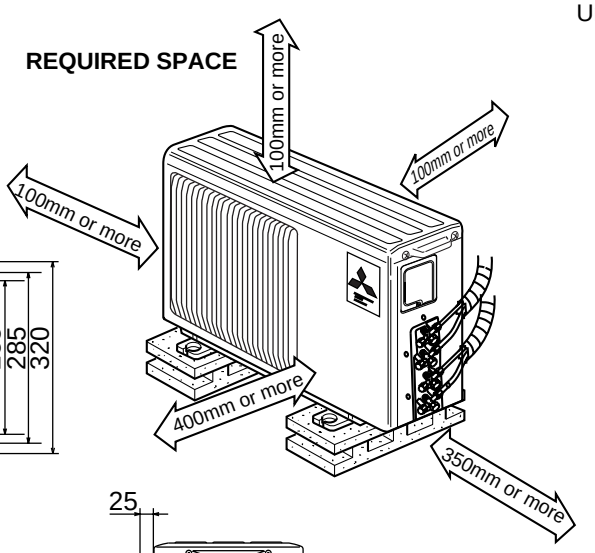
Gas refrigerant pipe joint
Refrigerant pipe (flared) ϕ9.52 (MU-A07/A09WV) (MUH-A07/A09WV)
ϕ12.7 (MU-A12WV) (MUH-A12WV)

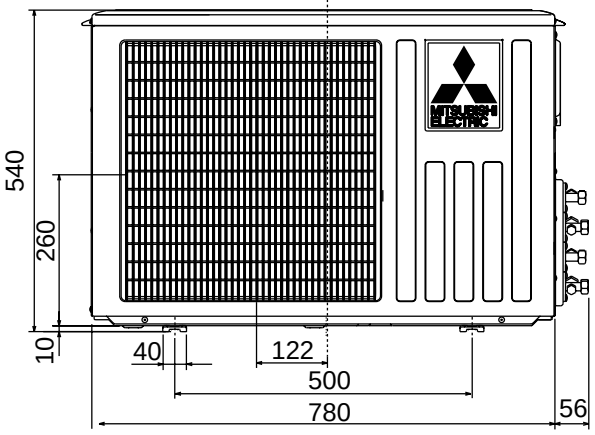
OUTDOOR UNIT

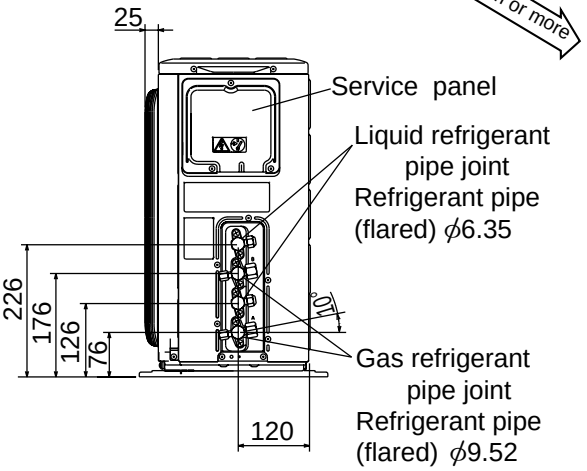
Unit: mm

MUX-A10WV-E1

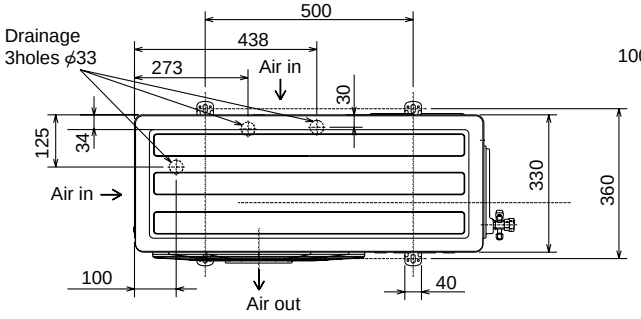


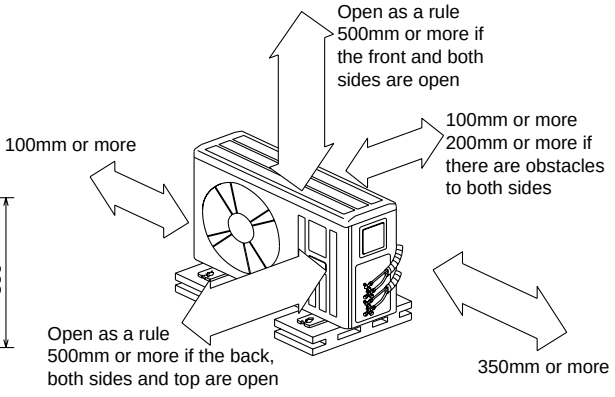


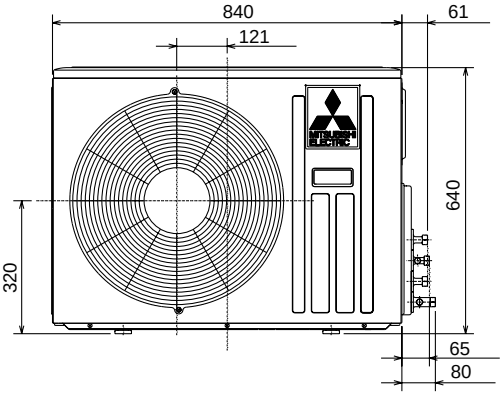


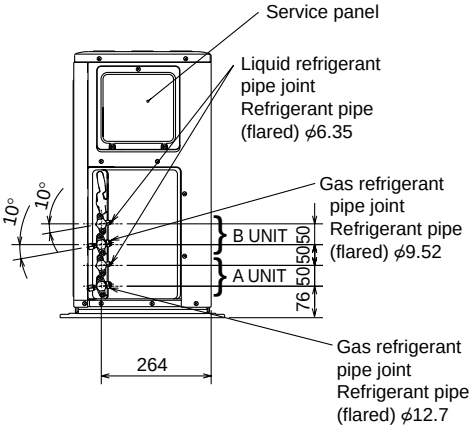


MUX-A19WV-E1





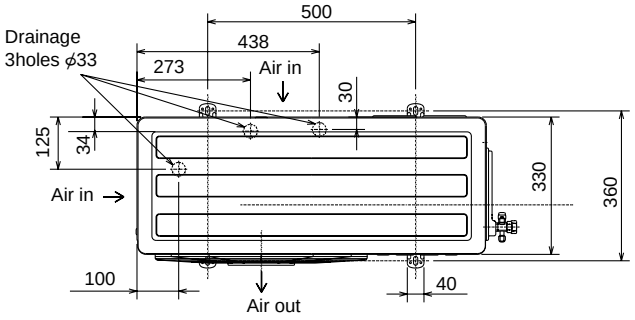


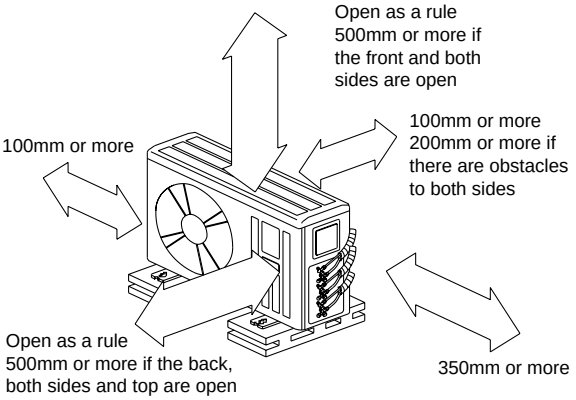


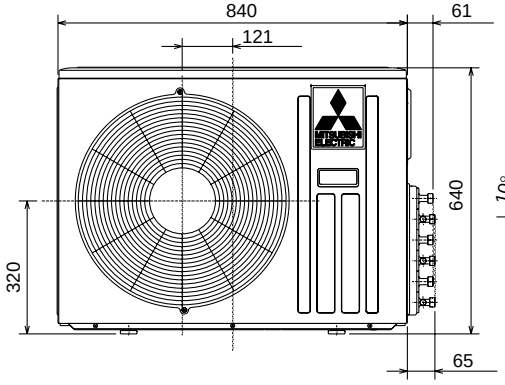
OUTDOOR UNIT

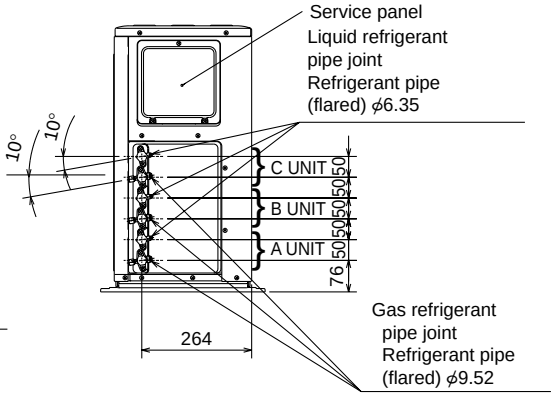
Unit: mm

MUX-A20WV-E1

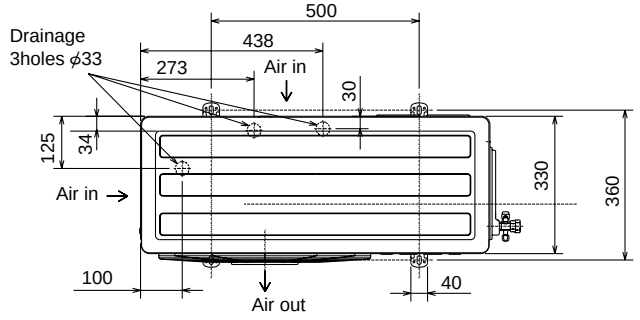


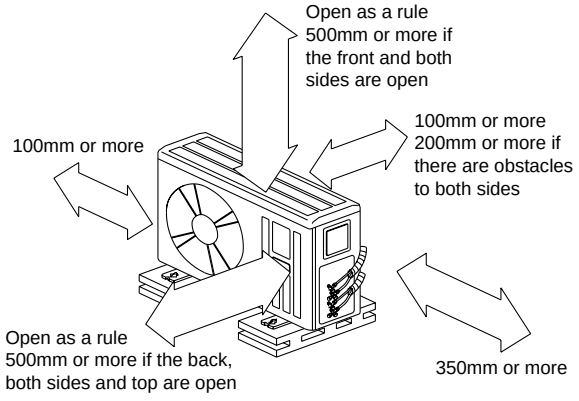


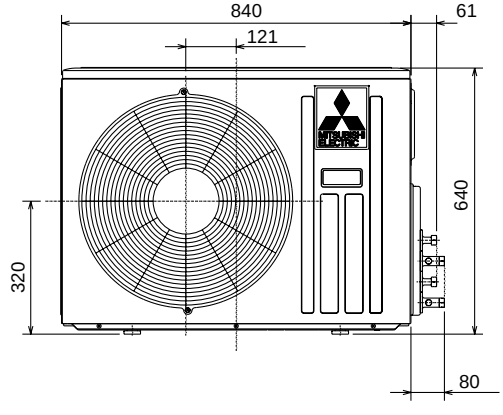


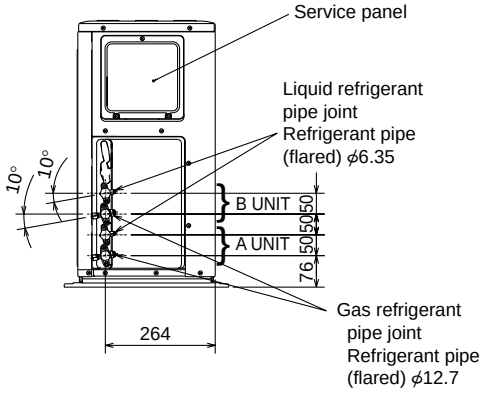


MUX-A25WV-E1





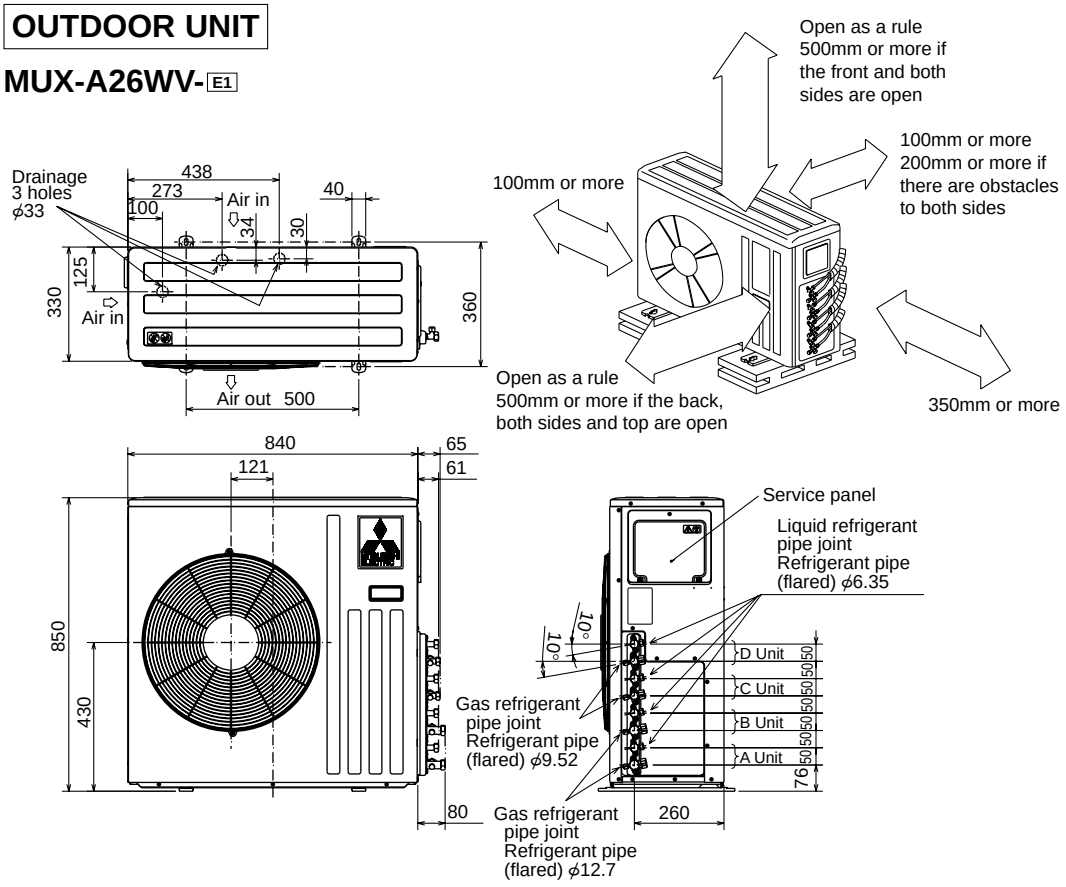




OUTDOOR UNIT

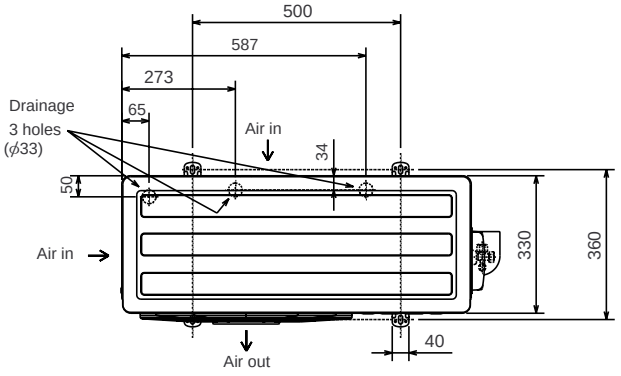
MUX-A26WV-E1

Unit: mm

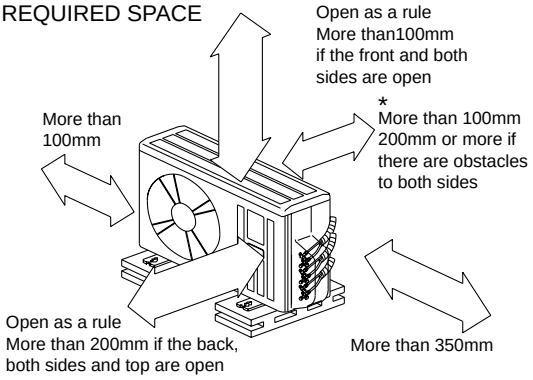


OUTDOOR UNIT

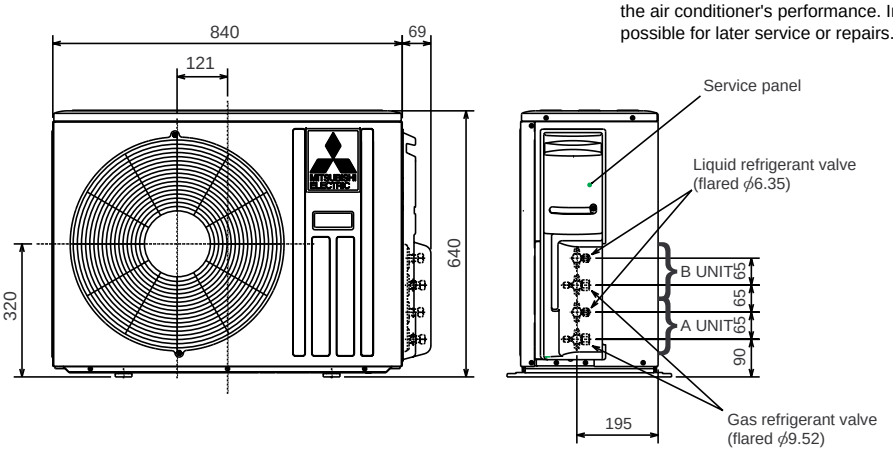
MXZ-A18WV -E1



REQUIRED SPACE



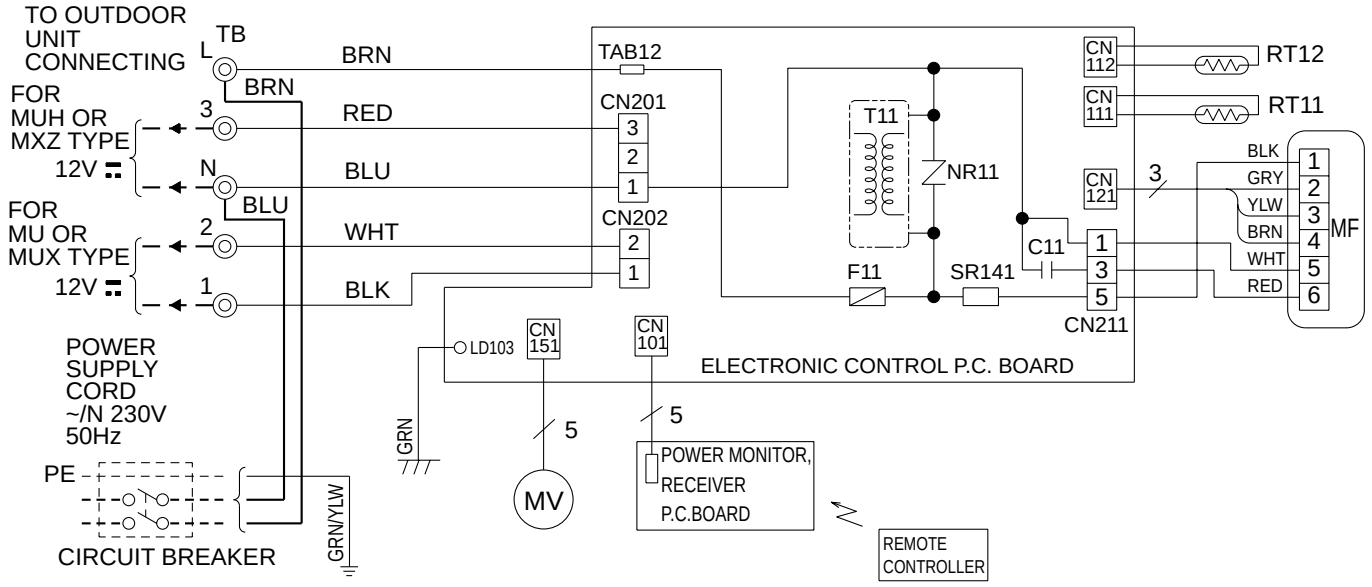
* Note:
The dimensions given along the arrrows above are required to guarantee the air conditioner's performance. Install the unit in as wide a place as possible for later service or repairs.



8 WIRING DIAGRAM

MSC-A07WV - E1
MSC-A09WV - E1
MSC-A12WV - E1 MODELS WIRING DIAGRAM

INDOOR UNIT



SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
C11	INDOOR FAN CAPACITOR	NR11	VARISTOR	TB	TERMINAL BLOCK
F11	FUSE(3.15A)	RT11	ROOM TEMPERATURE THERMISTOR	T11	TRANSFORMER
MF	INDOOR FAN MOTOR (INNER FUSE)	RT12	INDOOR COIL THERMISTOR		
MV	VANE MOTOR	SR141	SOLID STATE RELAY		

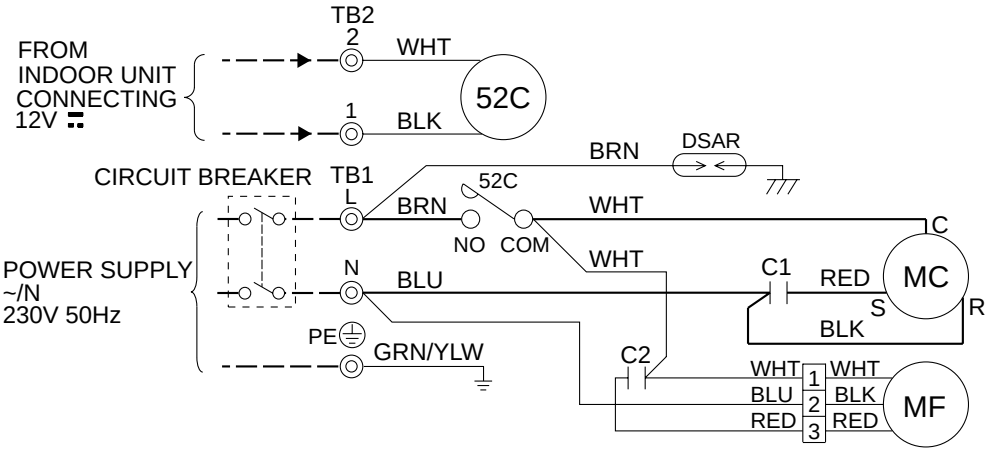
NOTE:1. About the outdoor side electric wiring refer to the outdoor unit electric wiring diagram for servicing.
2. Use copper conductors only. (For field wiring)
3. Symbols below indicate.
◎: Terminal block, □□□□: Connector

SG79J617H01

MU-A07WV -E1
MU-A09WV -E1
MU-A12WV -E1

MODELS WIRING DIAGRAM

OUTDOOR UNIT



SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
C1	COMPRESSOR CAPACITOR	MC	COMPRESSOR(INNER PROTECTOR)	52C	CONTACTOR
C2	OUTDOOR FAN CAPACITOR	MF	OUTDOOR FAN MOTOR(INNER FUSE)		
DSAR	SURGE ABSORBER	TB1,TB2	TERMINAL BLOCK		

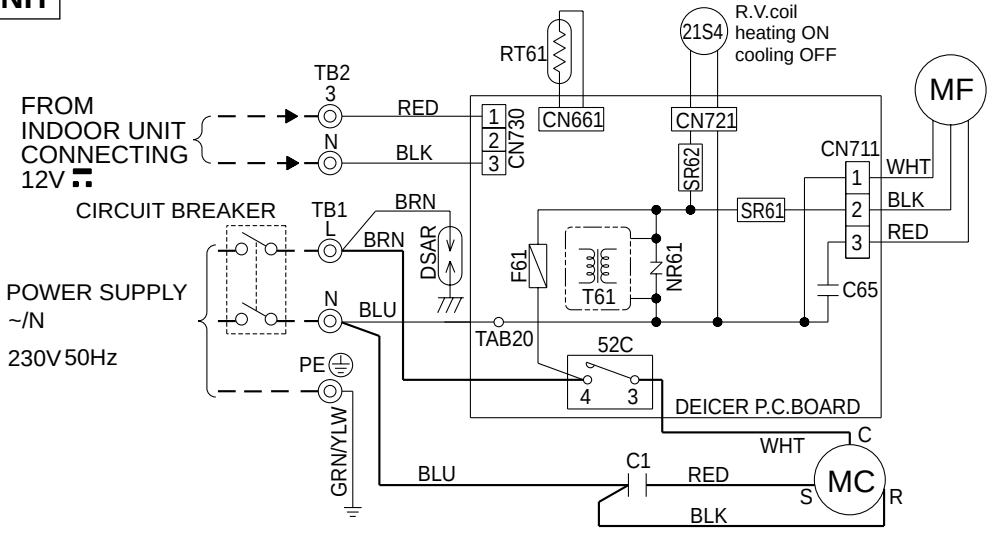
NOTE:1. About the indoor side electric wiring refer to the indoor unit electric wiring diagram for servicing.
2. Use copper conductors only. (For field wiring)
3. Symbols below indicate.
◎: Terminal block, □□□□: Connector

VG79B194H02

MUH-A07WV -E1
MUH-A09WV -E1
MUH-A12WV -E1

MODELS WIRING DIAGRAM

OUTDOOR UNIT



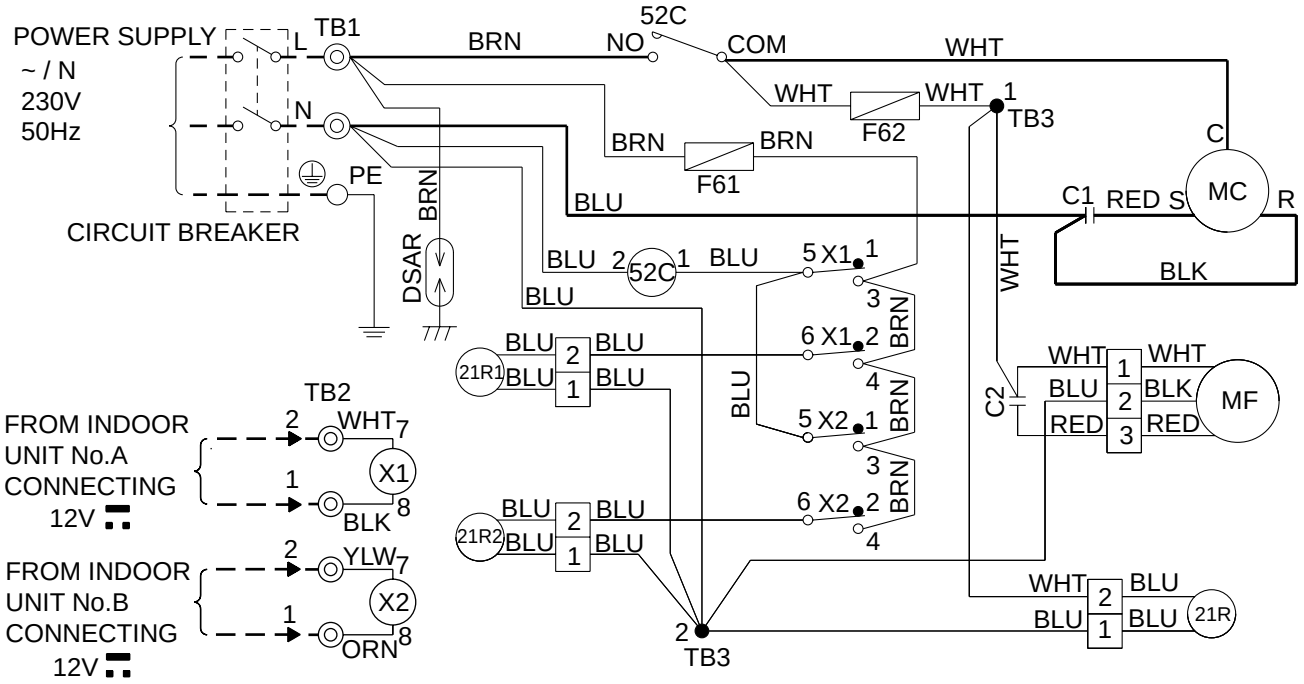
SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
C1	COMPRESSOR CAPACITOR	MF	OUTDOOR FAN MOTOR(INNER FUSE)	TB1,TB2	TERMINAL BLOCK
C65	OUTDOOR FAN CAPACITOR	NR61	VARISTOR	21S4	R.V. COIL
DSAR	SURGE ABSORBER	RT61	DEFROST THERMISTOR	52C	COMPRESSOR CONTACTOR
F61	FUSE(2A)	SR61,SR62	SOLID STATE RELAY		
MC	COMPRESSOR(INNER PROTECTOR)	T61	TRANS FORMER		

NOTE:1. About the indoor side electric wiring refer to the indoor unit electric wiring diagram for servicing.
2. Use copper conductors only. (For field wiring)
3. Symbols below indicate.
◎: Terminal block, □□□□: Connector

VG79B195H02

MUX-A10WV - E1

OUTDOOR UNIT MODEL WIRING DIAGRAM



SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
C1	COMPRESSOR CAPACITOR	MF	OUTDOOR FAN MOTOR(INNER FUSE)	21R1	SOLENOID COIL(A)
C2	OUTDOOR FAN CAPACITOR	TB1,TB2,TB3	TERMINAL BLOCK	21R2	SOLENOID COIL(B)
DSAR	SURGE ABSORBER	X1	RELAY(A)	52C	COMPRESSOR CONTACTOR
F61,F62	FUSE(2A)	X2	RELAY(B)		
MC	COMPRESSOR(INNER PROTECTOR)	21R	SOLENOID COIL		

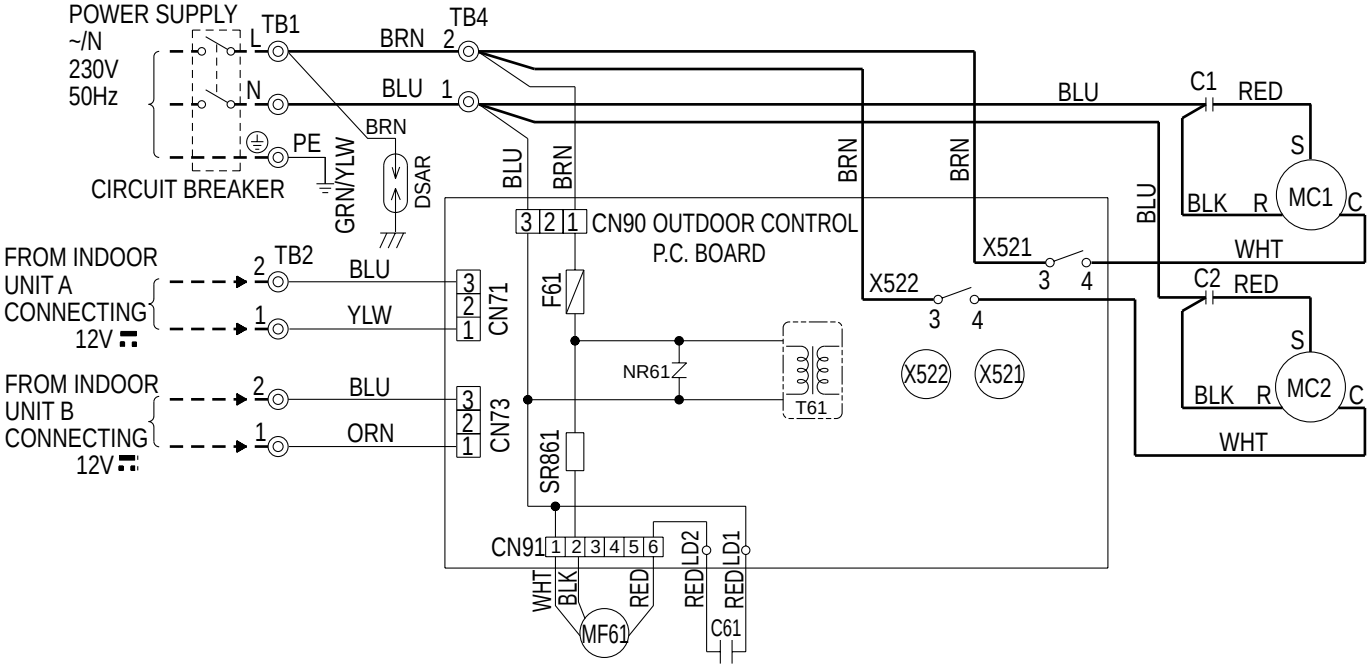
NOTE:1. About the indoor side electric wiring refer to the indoor unit electric wiring diagram for servicing.
2. Use copper conductors only. (For field wiring)
3. Symbols below indicate.
◎: Terminal block, □□□□: Connector

VG79B203H01

MUX-A19WV -E1
MUX-A25WV -E1

MODELS WIRING DIAGRAM

OUTDOOR UNIT



SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
C1	COMPRESSOR CAPACITOR(MC1)	MC1	COMPRESSOR(INNER PROTECTOR)	TB1	TERMINAL BLOCK
C2	COMPRESSOR CAPACITOR(MC2)	MC2	COMPRESSOR(INNER PROTECTOR)	TB2~TB4	TERMINAL BLOCK
C61	OUTDOOR FAN CAPACITOR	MF61	OUTDOOR FAN MOTOR (INNER PROTECTOR)	T61	TRANSFORMER
DSAR	SURGE ABSORBER	NR61	SURGE ABSORBER	X521	COMPRESSOR CONTACTOR(MC1)
F61	FUSE(3.15A)	SR861	OUTDOOR FAN RELAY	X522	COMPRESSOR CONTACTOR(MC2)

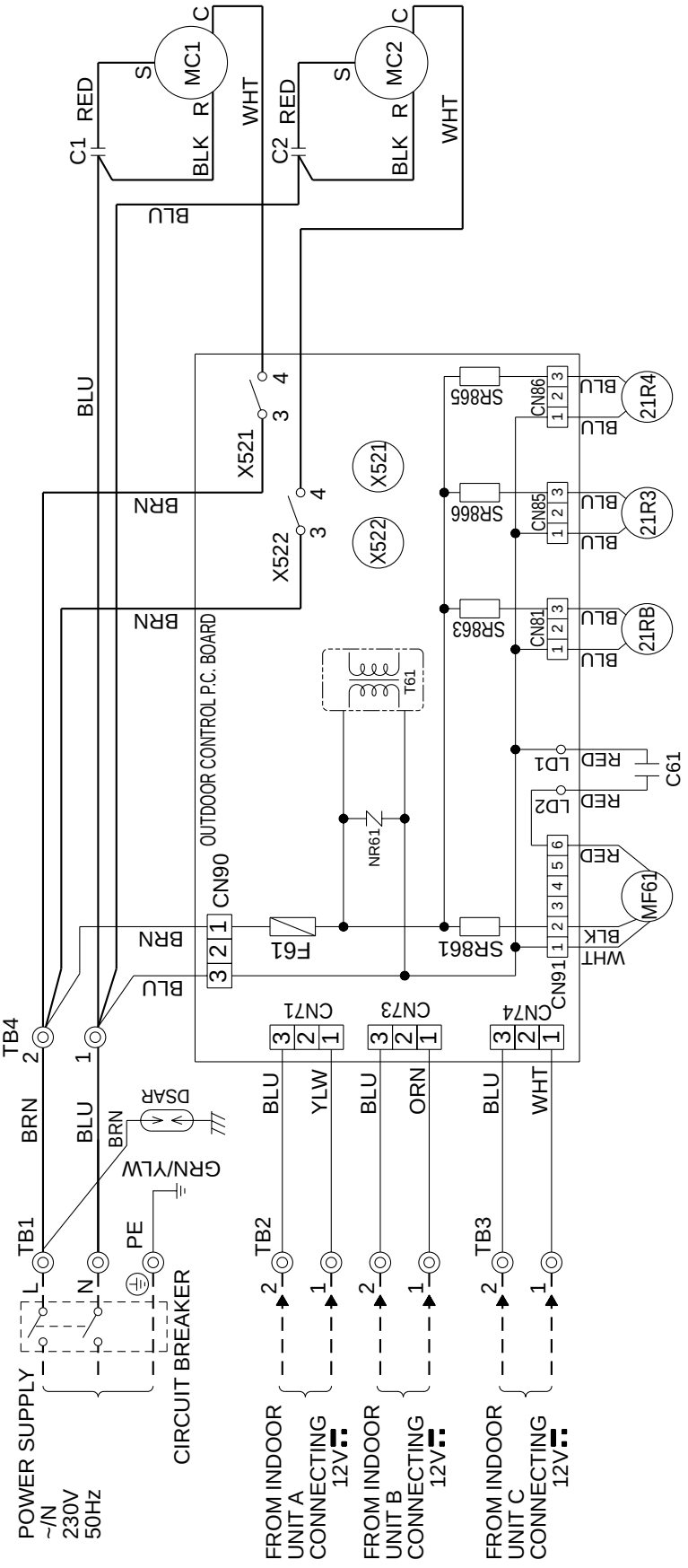
NOTE:1. About the indoor side electric wiring refer to the indoor unit electric wiring diagram for servicing.
2. Use copper conductors only. (For field wiring)
3. Symbols below indicate.
◎: Terminal block, □□□□: Connector

VG79B200H02

MUX-A20WV - E1

OUTDOOR UNIT

MODEL WIRING DIAGRAM



SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
C1	COMPRESSOR CAPACITOR(MC1)	MF61	OUTDOOR FAN MOTOR(INNER PROTECTOR)	TB2~TB4	TERMINAL BLOCK
C2	COMPRESSOR CAPACITOR(MC2)	NR61	SURGE ABSORBER	T61	TRANS FORMER
C61	OUTDOOR FAN CAPACITOR	SR861	OUTDOOR FAN RELAY	X521	COMPRESSOR CONTACTOR(MC1)
DSAR	SURGE ABSORBER	SR863	RELAY (21RB)	X522	COMPRESSOR CONTACTOR(MC2)
F61	FUSE(3.15A)	SR865	RELAY (C) (21R4)	21RB	SOLENOID COIL
MC1	COMPRESSOR(INNER PROTECTOR)	SR866	RELAY (B) (21R3)	21R3	SOLENOID COIL (B)
MC2	COMPRESSOR(INNER PROTECTOR)	TB1	TERMINAL BLOCK	21R4	SOLENOID COIL (C)

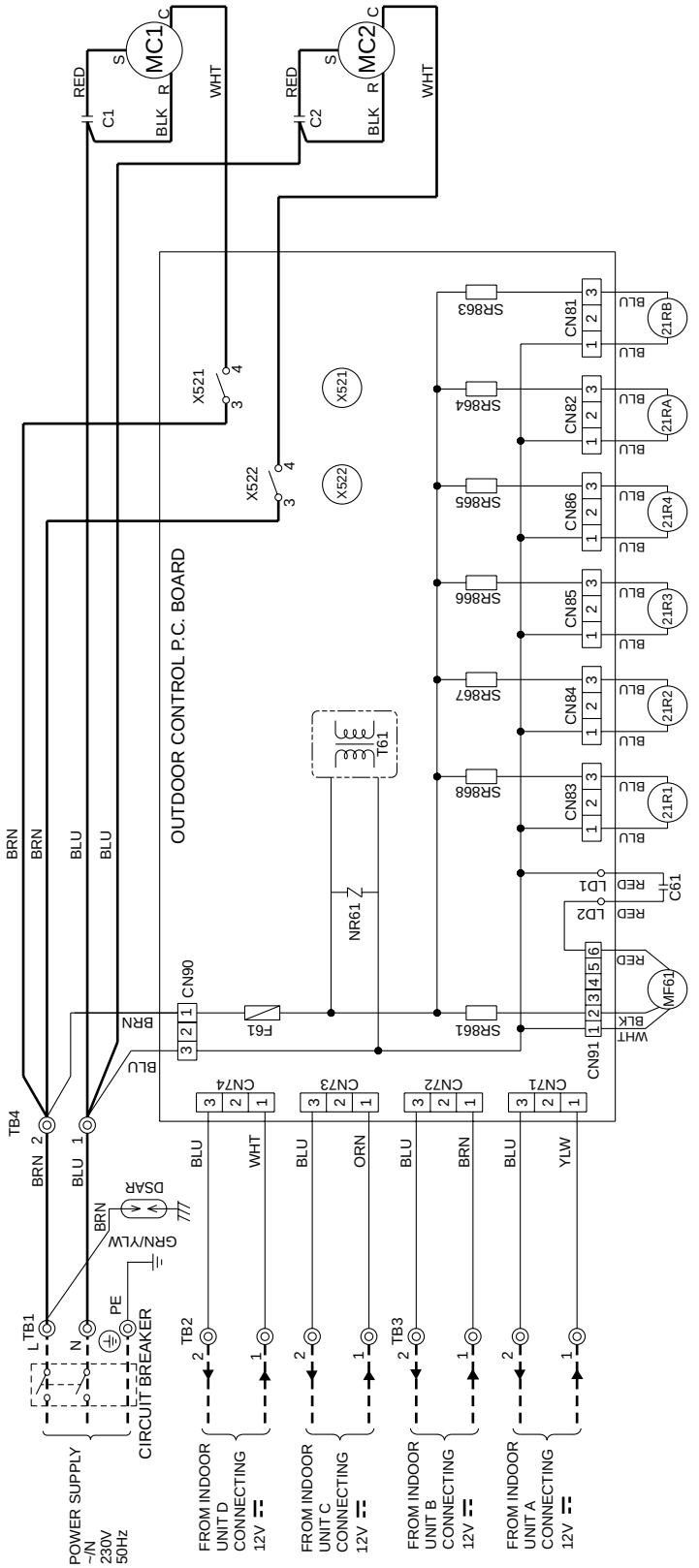
NOTE:1. About the indoor side electric wiring refer to the indoor unit electric wiring diagram for servicing.
2. Use copper conductors only. (For field wiring)
3. Symbols below indicate.
◎: Terminal block, □□□ : Connector

VG79B201H02

MUX-A26WV -E1

OUTDOOR UNIT

MODEL WIRING DIAGRAM

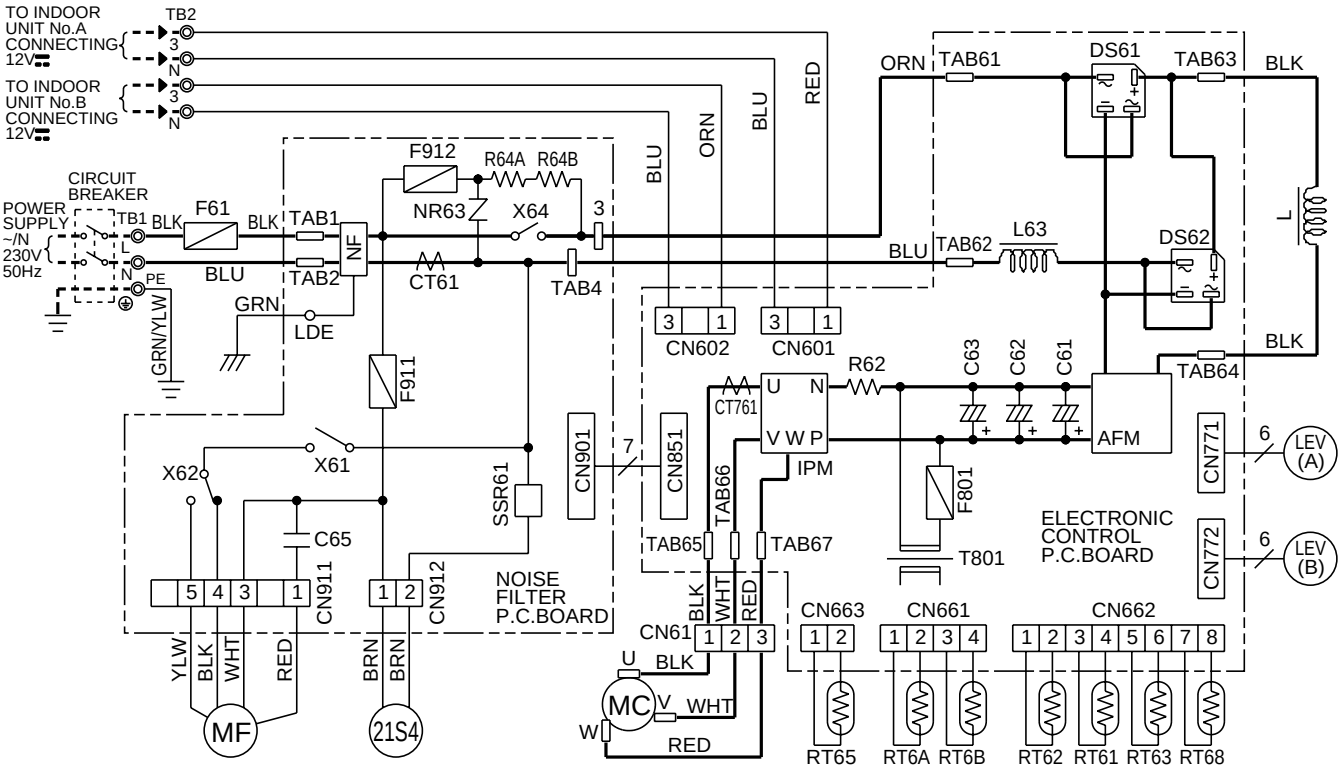


SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
C1	COMPRESSOR CAPACITOR(MC1)	SR861	OUTDOOR FAN RELAY	X521	COMPRESSOR CONTACTOR(MC1)
C2	COMPRESSOR CAPACITOR(MC2)	SR863	RELAY (21RB)	X522	COMPRESSOR CONTACTOR(MC2)
C61	OUTDOOR FAN CAPACITOR	SR864	RELAY (21RA)	21RA	SOLENOID COIL (BALANCE)
DSAR	SURGE ABSORBER	SR865	RELAY (D) (21R4)	21RB	SOLENOID COIL (BALANCE)
F61	FUSE(3.15A)	SR866	RELAY (C) (21R3)	21R1	SOLENOID COIL (A)
MC1	COMPRESSOR(INNER PROTECTOR)	SR867	RELAY (B) (21R2)	21R2	SOLENOID COIL (B)
MC2	COMPRESSOR(INNER PROTECTOR)	SR868	RELAY (A) (21R1)	21R3	SOLENOID COIL (C)
MF61	OUTDOOR FAN MOTOR(INNER PROTECTOR)	TB1~TB4	TERMINAL BLOCK	21R4	SOLENOID COIL (D)
NR61	SURGE ABSORBER	T61	TRANS FORMER		

NOTE:1. About the indoor side electric wiring refer to the indoor unit electric wiring diagram for servicing.
2. Use copper conductors only. (For field wiring)
3. Symbols below indicate.
◎: Terminal block, □□□ : Connector

VG79B198H03

OUTDOOR UNIT MODEL MXZ-A18WV- E1



SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
AFM	ACTIVE FILTER MODULE	LEV(A)	EXPANSION VALVE A,COIL	R64A	RESISTOR
CT61	CURRENT TRANSFORMER	LEV(B)	EXPANSION VALVE B,COIL	R64B	RESISTOR
CT761	CURRENT TRANSFORMER	L63	NORMAL MODE CHOKE COIL	SSR61	SOLENOID COIL RELAY
C61	SMOOTHING CAPACITOR	MC	COMPRESSOR	TB1	TERMINAL BLOCK
C62	SMOOTHING CAPACITOR	MF	FAN MOTOR	TB2	TERMINAL BLOCK
C63	SMOOTHING CAPACITOR	NF	NOISE FILTER	T801	TRANSFORMER
C65	FAN MOTOR CAPACITOR	NR63	VARISTOR	X61	FAN MOTOR RELAY
DS61	DIODE MODULE	RT6A	GAS PIPE TEMP.A THERMISTOR	X62	FAN MOTOR RELAY
DS62	DIODE MODULE	RT6B	GAS PIPE TEMP.B THERMISTOR	X64	RELAY
F61	FUSE(20A)	RT61	DISCHARGE TEMP.THERMISTOR	21S4	REVERSING VALVE SOLENOID COIL
F801	FUSE(1A)	RT62	DEFROST TEMP.THERMISTOR		
F911	FUSE(1A)	RT63	EVAPORATOR TEMP.THERMISTOR		
F912	FUSE(3.15A)	RT65	FIN TEMP.THERMISTOR		
IPM	POWER TRANSISTOR MODULE	RT68	HIGH-PRESSURE PROTECT THERMISTOR		
L	REACTOR	R62	RESISTOR		

NOTES 1.About the indoor side electric wiring refer to the indoor unit electric wiring diagram for servicing.
2.Use copper conductors only(for field wiring).
3.Symbols below indicate.
◎:Terminal block □□□:Connector

SG79J614H02

9 REFRIGERANT SYSTEM DIAGRAM

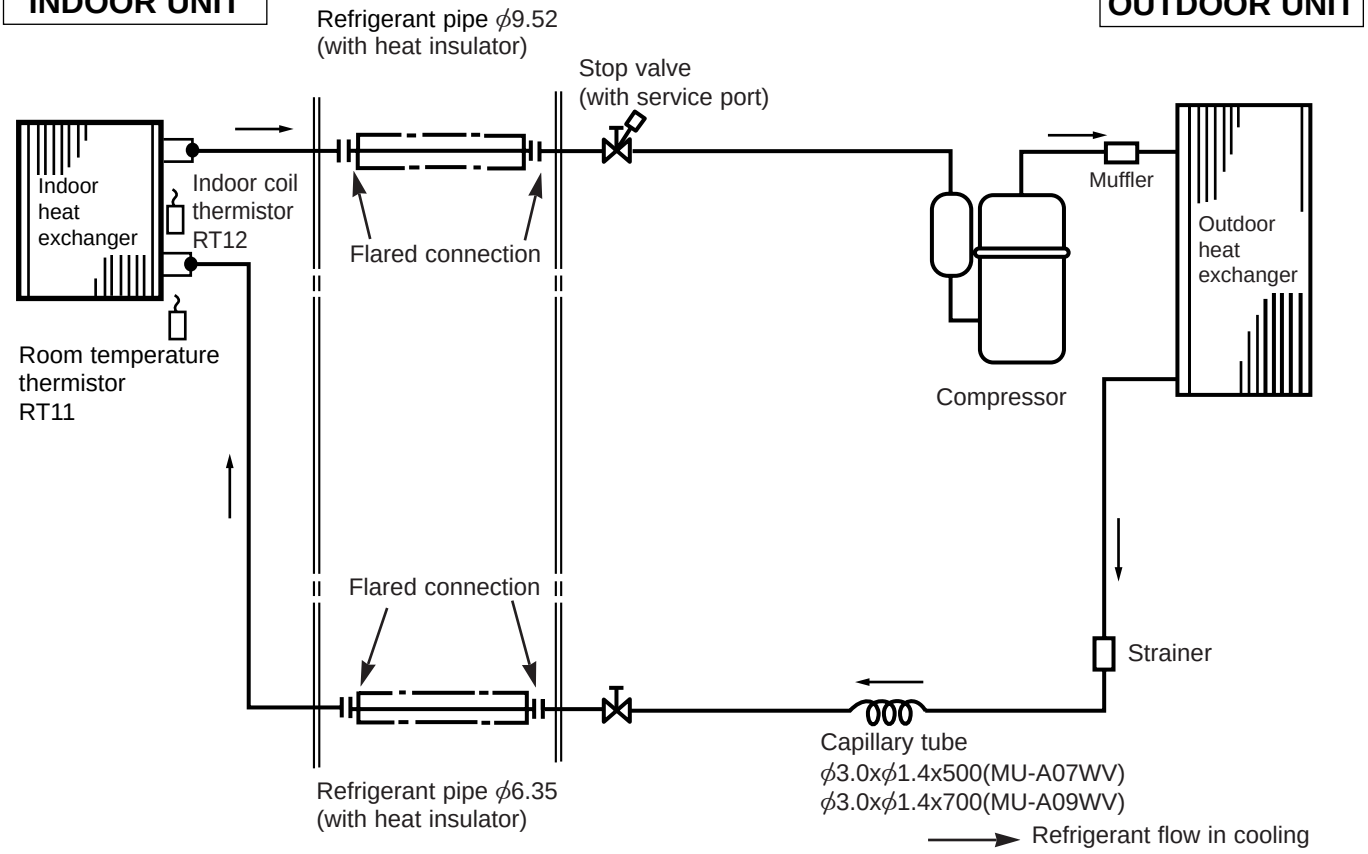
Unit:mm

MSC-A07WV - E1
MSC-A09WV - E1

INDOOR UNIT

MU-A07WV - E1
MU-A09WV - E1

OUTDOOR UNIT



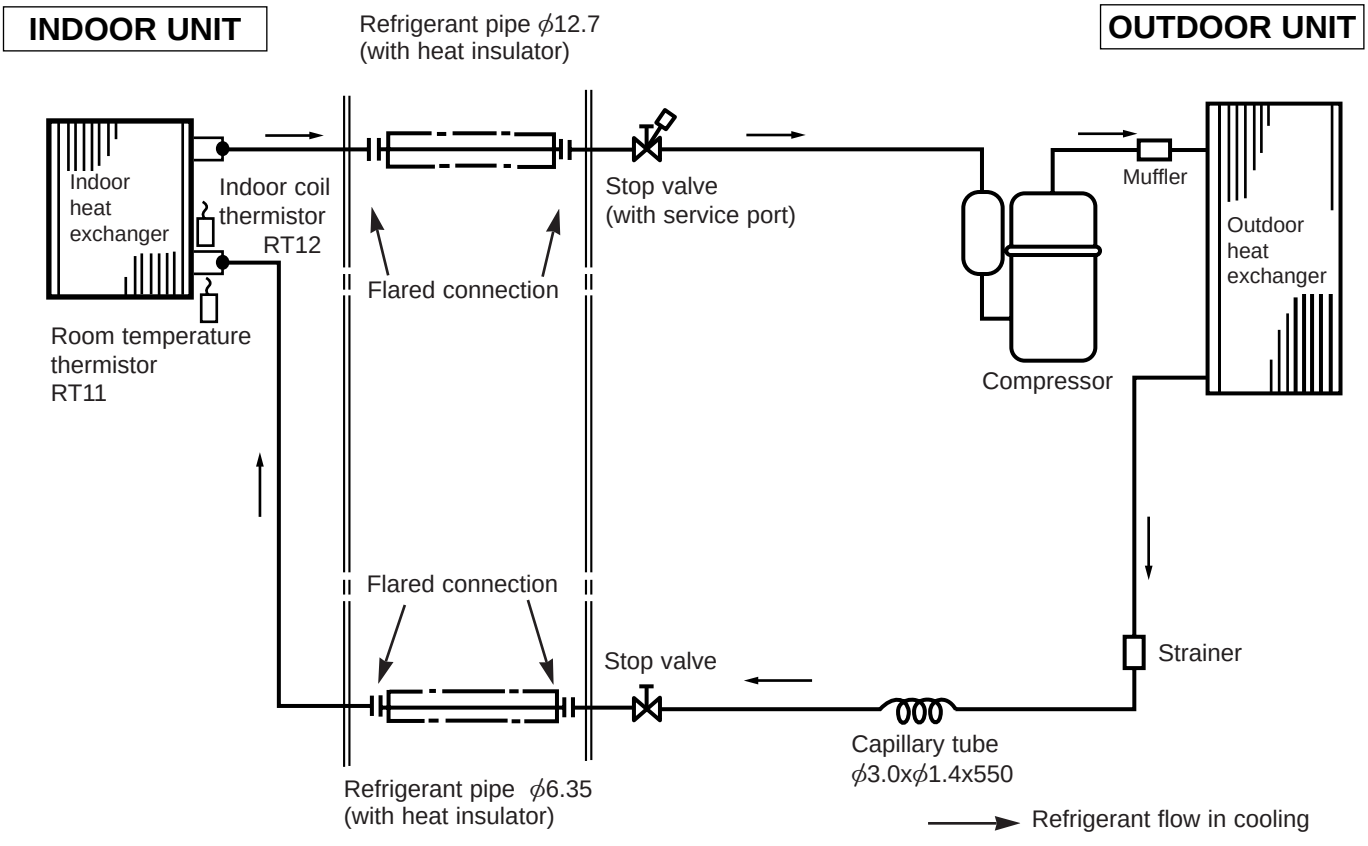
Unit:mm

MSC-A12WV - E1

INDOOR UNIT

MU-A12WV - E1

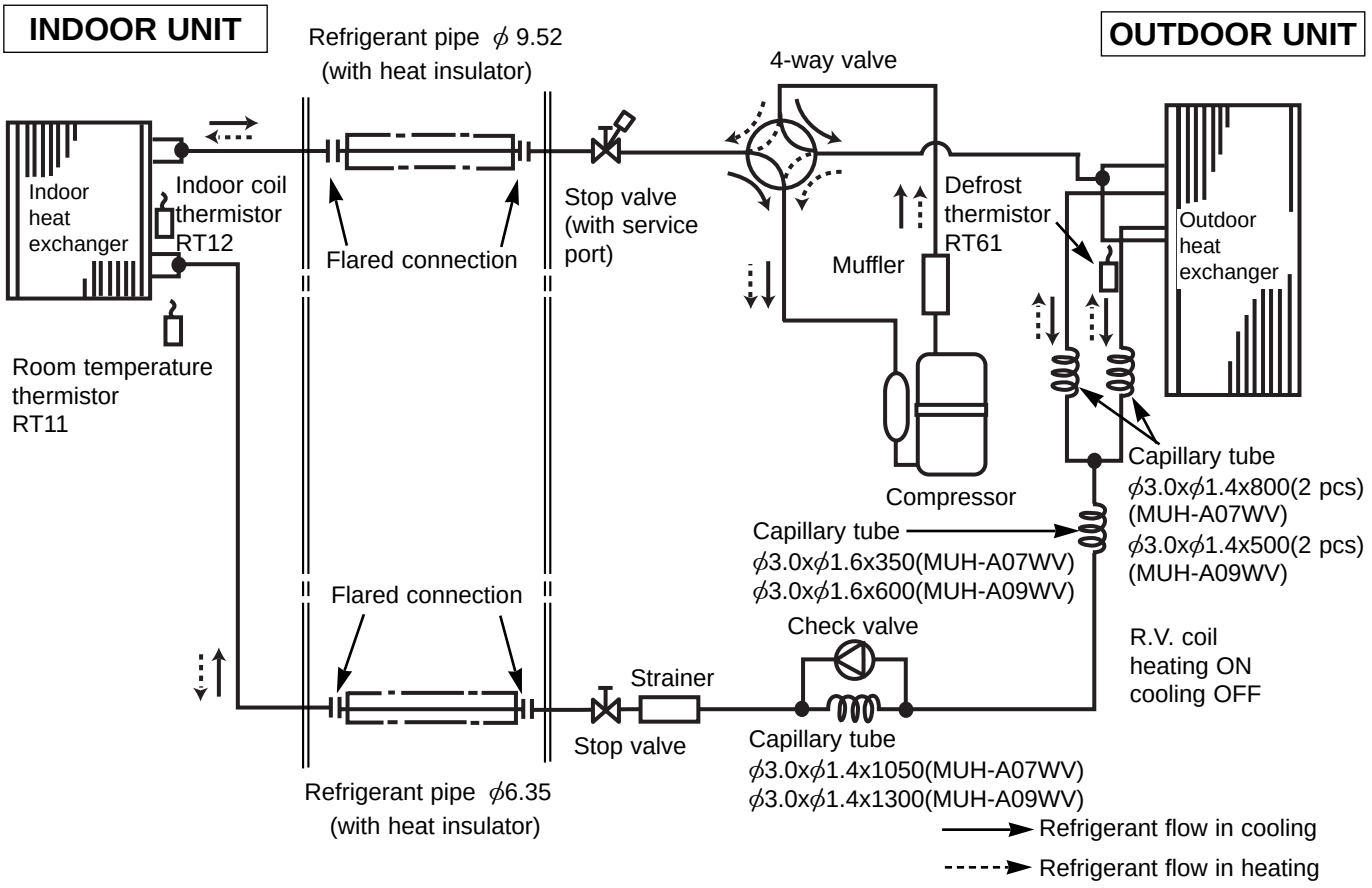
OUTDOOR UNIT



Unit:mm

MSC-A07WV -E1
MSC-A09WV -E1
INDOOR UNIT

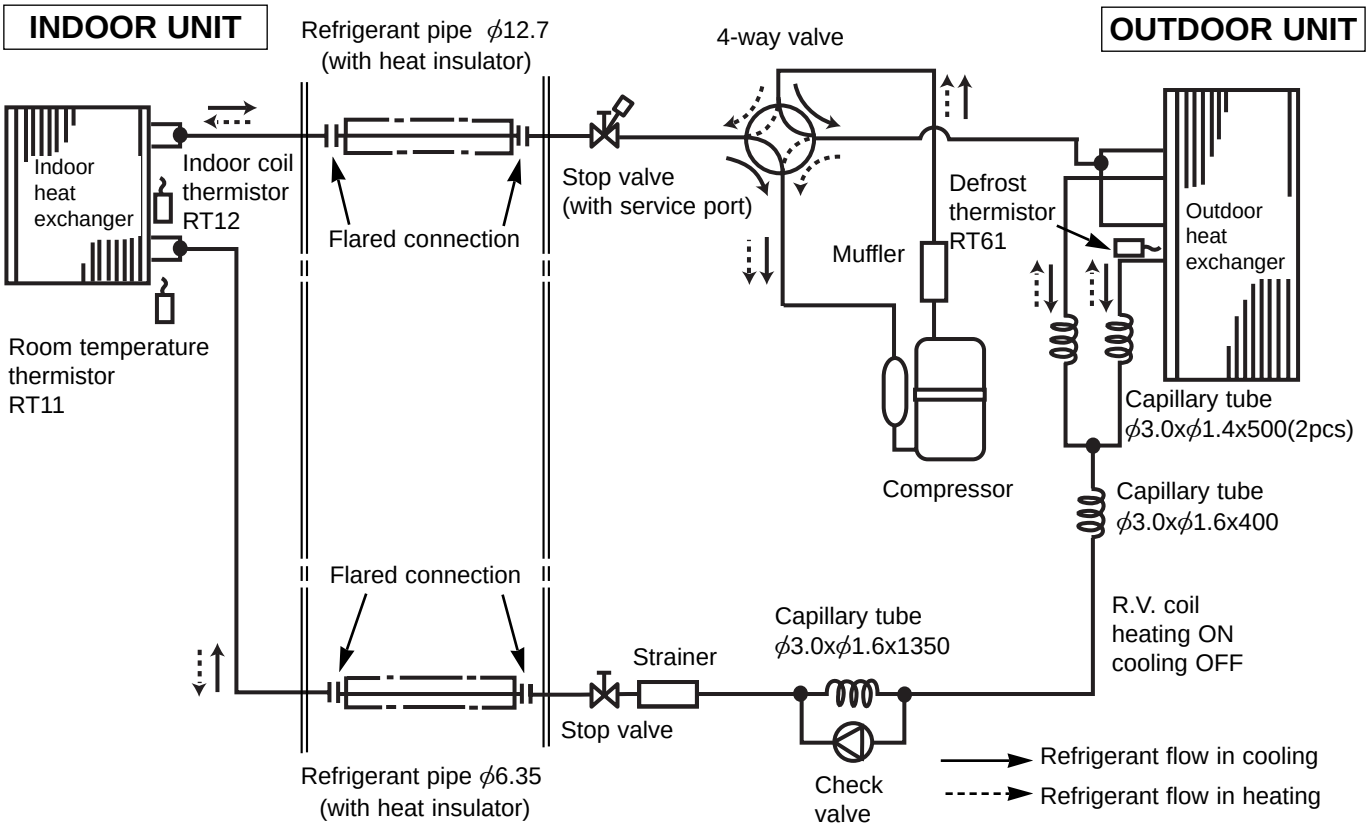
MUH-A07WV -E1
MUH-A09WV -E1
OUTDOOR UNIT



Unit:mm

MSC-A12WV -E1
INDOOR UNIT

MUH-A12WV -E1
OUTDOOR UNIT



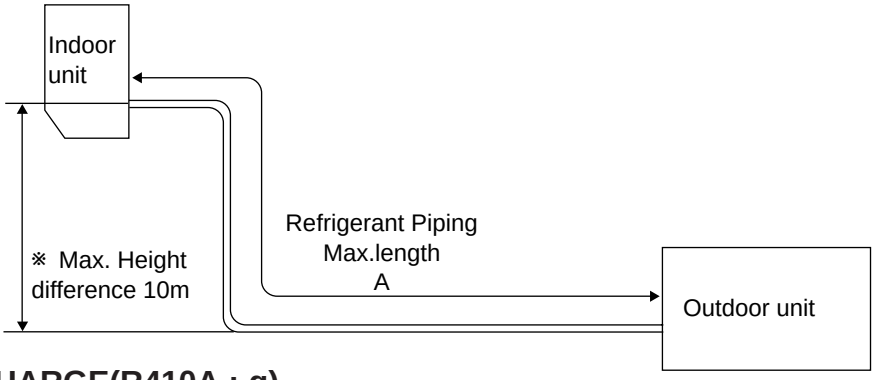
MAX. REFRIGERANT PIPING LENGTH

Model	Refrigerant piping Max. length : m A	Piping size O.D : mm		Length of connecting pipe : m	
		Gas	Liquid	Indoor unit	Outdoor unit
MSC-A07WV - E1 MU-A07WV - E1 MSC-A09WV - E1 MU-A09WV - E1	20	9.52	6.35	Gas 0.43 Liquid 0.5	Gas 0 Liquid 0
MSC-A12WV - E1 MU-A12WV - E1	25	12.7			

Model	Refrigerant piping Max. length : m A	Piping size O.D : mm		Length of connecting pipe : m	
		Gas	Liquid	Indoor unit	Outdoor unit
MSC-A07WV - E1 MUH-A07WV - E1 MSC-A09WV - E1 MUH-A09WV - E1	20	9.52	6.35	Gas 0.43 Liquid 0.5	Gas 0 Liquid 0
MSC-A12WV - E1 MUH-A12WV - E1	25	12.7			

MAX. HEIGHT DIFFERENCE

Height difference should be within 10m regardless of which unit, indoor or outdoor position is high.



ADDITIONAL REFRIGERANT CHARGE(R410A : g)

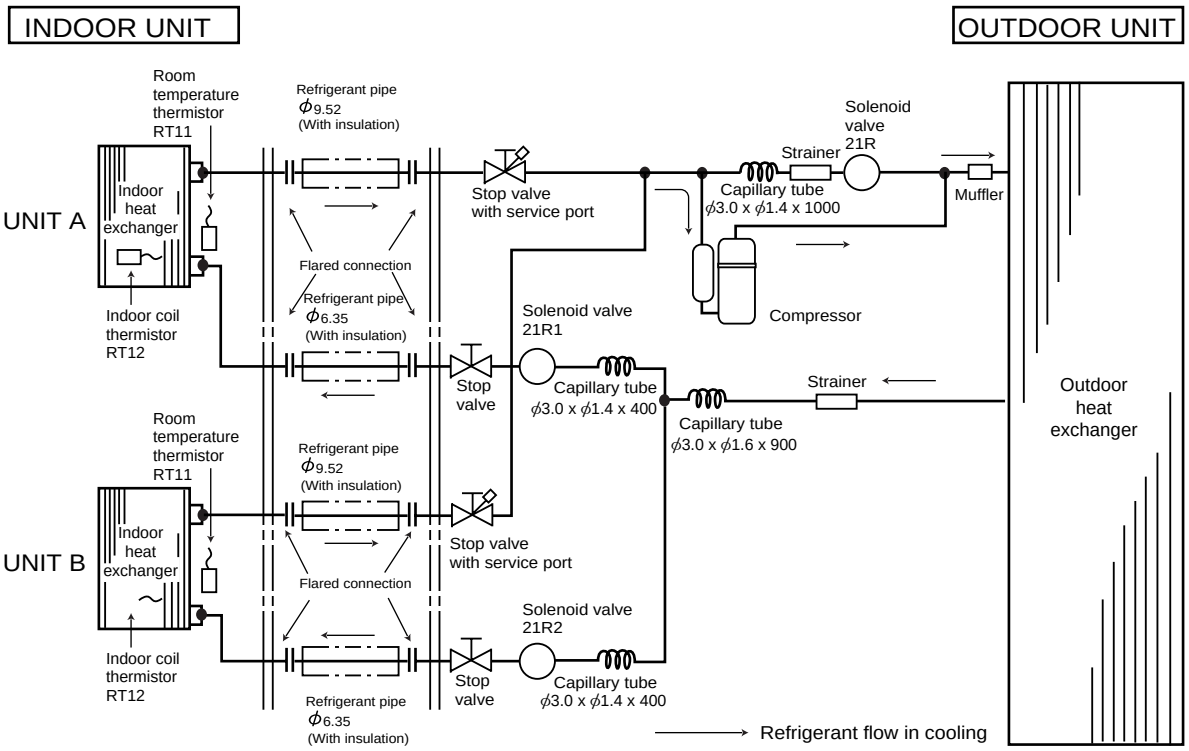
Model	Outdoor unit precharged	Refrigerant piping length (one way)				
		7m	10m	15m	20m	25m
MSC-A07WV - E1 MU-A07WV - E1	750	0	60	160	260	
MSC-A09WV - E1 MU-A09WV - E1	800					
MSC-A12WV - E1 MU-A12WV - E1	830					360

Calculation : Xg=20g/m x(A-7)m

Model	Outdoor unit precharged	Refrigerant piping length (one way)				
		7m	10m	15m	20m	25m
MSC-A07WV - E1 MUH-A07WV - E1	750	0	60	160	260	
MSC-A09WV - E1 MUH-A09WV - E1	1100					
MSC-A12WV - E1 MUH-A12WV - E1	1150					360

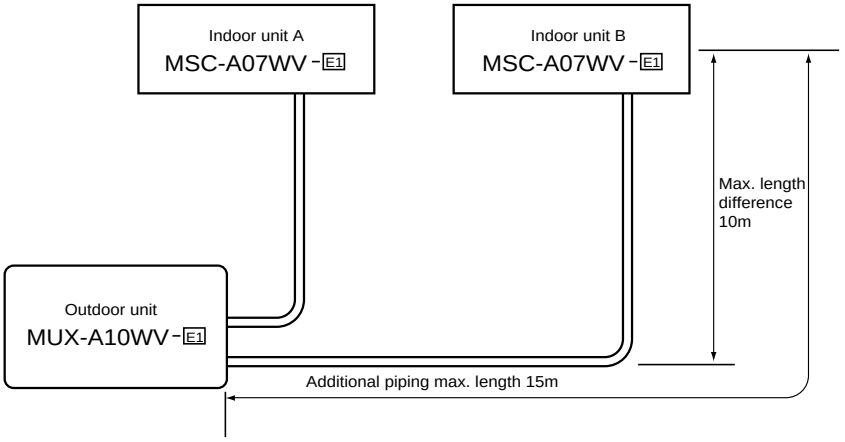
Calculation : Xg=20g/m 5 x(A-7)m

MSC-A07WV-E1 **MUX-A10WV-E1** **Unit : mm**



MSX-A10WV-E1

MAX. REFRIGERANT PIPING LENGTH & MAX. HEIGHT DIFFERENCE



ADDITIONAL REFRIGERANT CHARGE (R410A:g)

UNIT No.	Outdoor unit precharged	Refrigerant piping length (one way)																				
		10 m	11 m	12 m	13 m	14 m	15 m	16 m	17 m	18 m	19 m	20 m	21 m	22 m	23 m	24 m	25 m	26 m	27 m	28 m	29 m	30 m
A unit + B unit	1000g	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200

PIPING PREPARATION

① Table below shows the specifications of pipes commercially available.

UNIT No.	Pipe	Outside diameter mm	Insulation thickness	Insulation material
A and B UNIT	For liquid	6.35	8 mm	Heat resisting foam plastic 0.045 specific gravity
	For gas	9.52	8 mm	

② Ensure that the 2 refrigerant pipes are well insulated to prevent condensation.
③ Refrigerant bending radius must be 10cm or more.

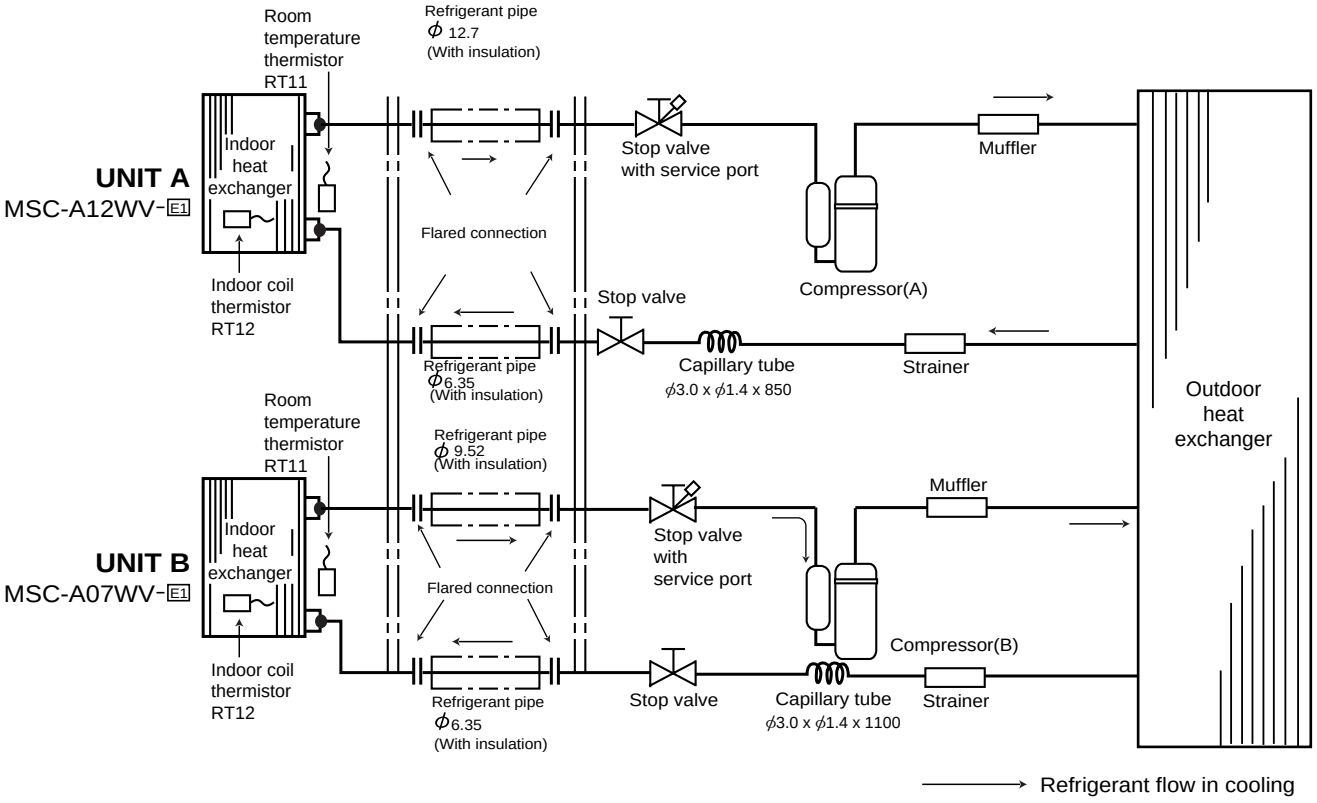
Unit : mm

MSC-A07WV-E1
MSC-A12WV-E1

MUX-A19WV-E1

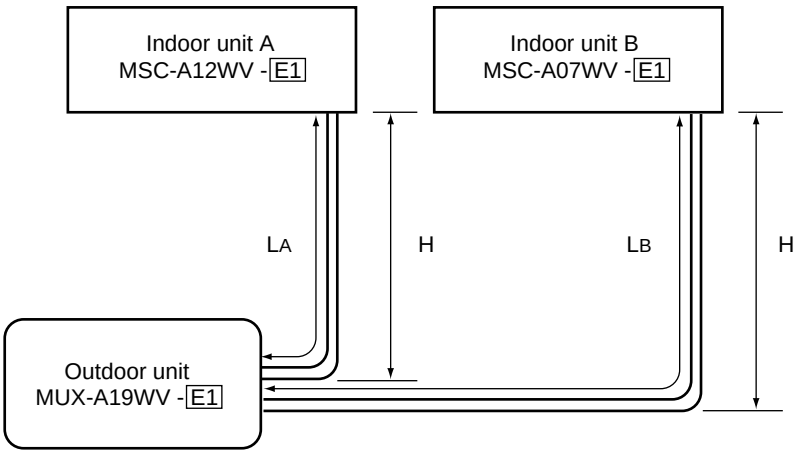
INDOOR UNIT

OUTDOOR UNIT



MSX-A19WV-E1

MAX.REFRIGERANT PIPING LENGTH & MAX. HEIGHT DIFFERENCE



	UNIT No.	Pipe length		Height difference (H)	No. of bends
Max. limits	A	LA	15m	10m	10
	B	LB	15m	10m	10

ADDITIONAL REFRIGERANT CHARGE (R410A:g)

		Refrigerant piping length (one way)								
A unit	Outdoor unit precharged	7m	8m	9m	10m	11m	12m	13m	14m	15m
	1000g	0	20	40	60	80	100	120	140	160
		Refrigerant piping length (one way,2 unit total)								
B unit	Outdoor unit precharged	7m	8m	9m	10m	11m	12m	13m	14m	15m
	800g	0	20	40	60	80	100	120	140	160

PIPING PREPARATION

①Table below shows the specifications of pipes commercially available.

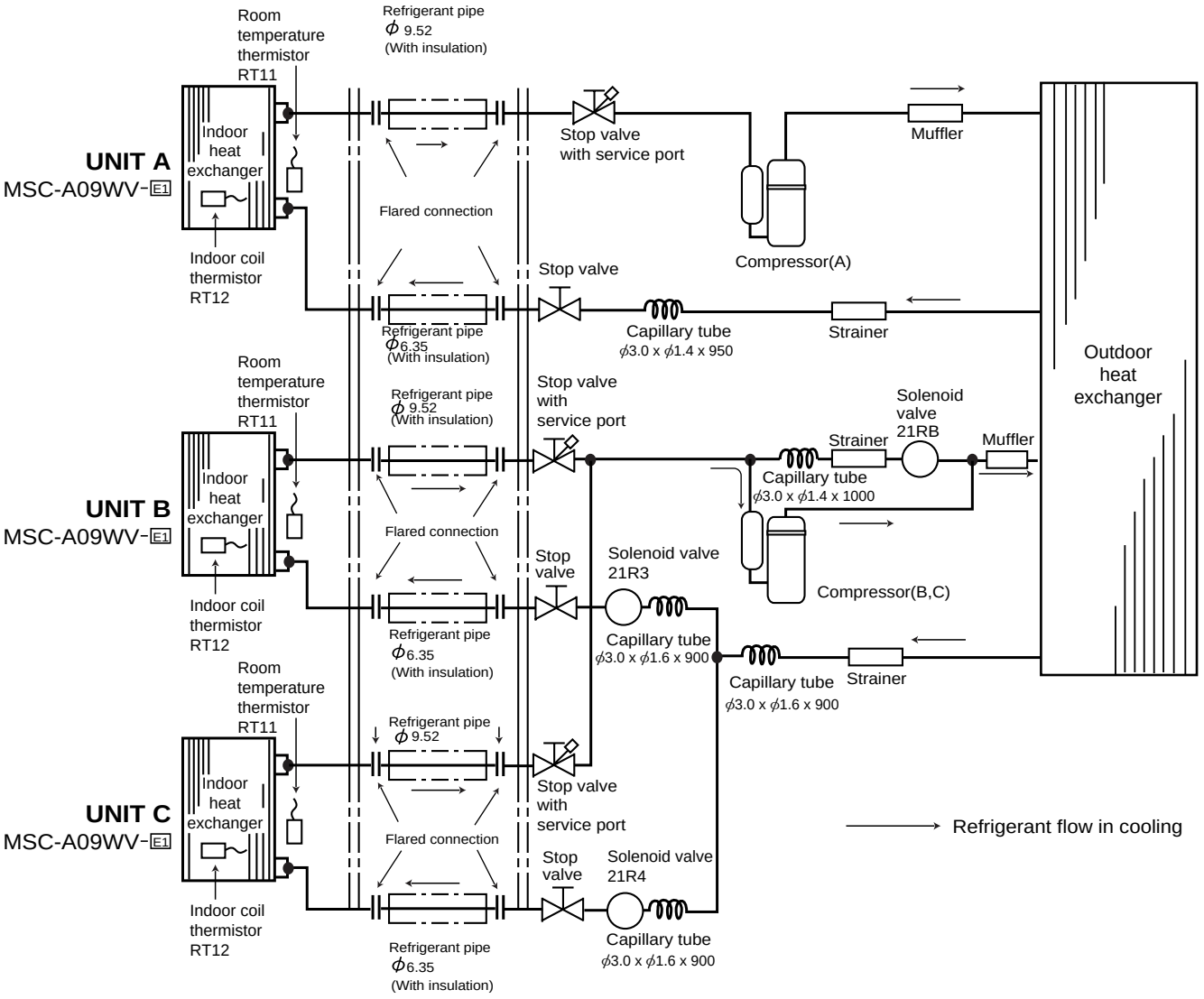
UNIT No.	Pipe	Outside diameter	Insulation thickness	Insulation material
		mm		
A unit	For liquid	6.35	8mm	Heat resisting foam plastic 0.045 specific gravity
	For gas	12.7	8mm	
B unit	For liquid	6.35	8mm	
	For gas	9.52	8mm	

②Ensure that the 2 refrigerant pipes are well insulated to prevent condensation.
③Refrigerant bending radius must be 10cm or more.

Unit : mm

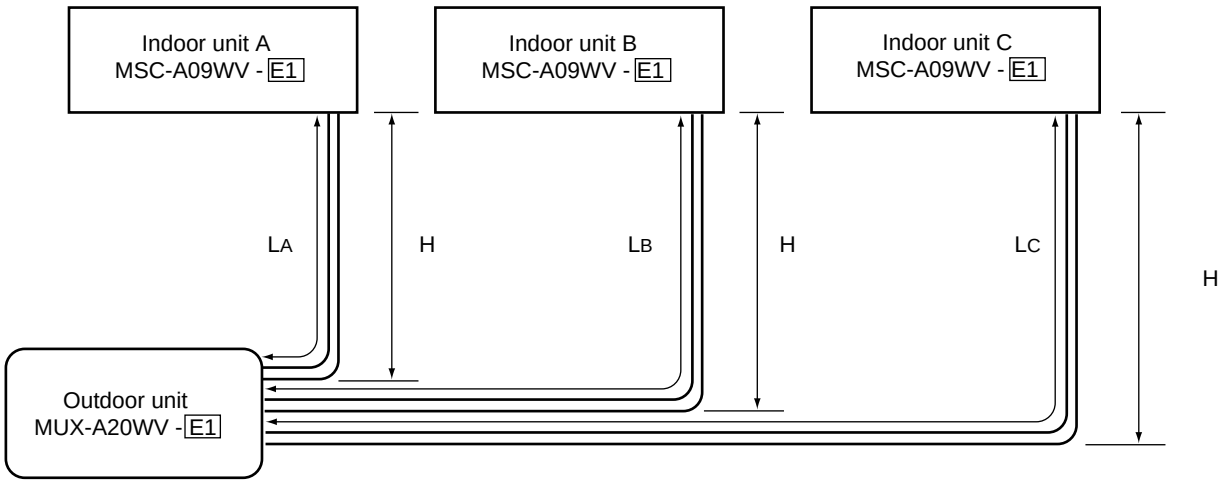
MSC-A09WV-E1 **MUX-A20WV-E1**

INDOOR UNIT **OUTDOOR UNIT**



MSX-A20WV-E1

MAX.REFRIGERANT PIPING LENGTH & MAX. HEIGHT DIFFERENCE



	UNIT No.	Pipe length				Height difference (H)	No. of bends	
Max. limits	A	LA	15m			10m	10	
	B	LB	15m	LB + LC	Total 30m	10m	10	Total 15
	C	LC	15m			10m	10	

ADDITIONAL REFRIGERANT CHARGE (R410A:g)

		Refrigerant piping length (one way)								
A unit	Outdoor unit precharged	7m	8m	9m	10m	11m	12m	13m	14m	15m
	800g	0	20	40	50	80	100	120	140	160

		Refrigerant piping length (one way, 2 unit total)																				
B unit + C unit	Outdoor unit precharged	10m	11m	12m	13m	14m	15m	16m	17m	18m	19m	20m	21m	22m	23m	24m	25m	26m	27m	28m	29m	30m
	1000g	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200

PIPING PREPARATION

①Table below shows the specifications of pipes commercially available.

UNIT No.	Pipe	Outside diameter	Insulation thickness	Insulation material
		mm		
A , B and C unit	For liquid	6.35	8mm	Heat resisting foam plastic 0.045 specific gravity
	For gas	9.52	8mm	

②Ensure that the 2 refrigerant pipes are well insulated to prevent condensation.

③Refrigerant bending radius must be 100mm or more.

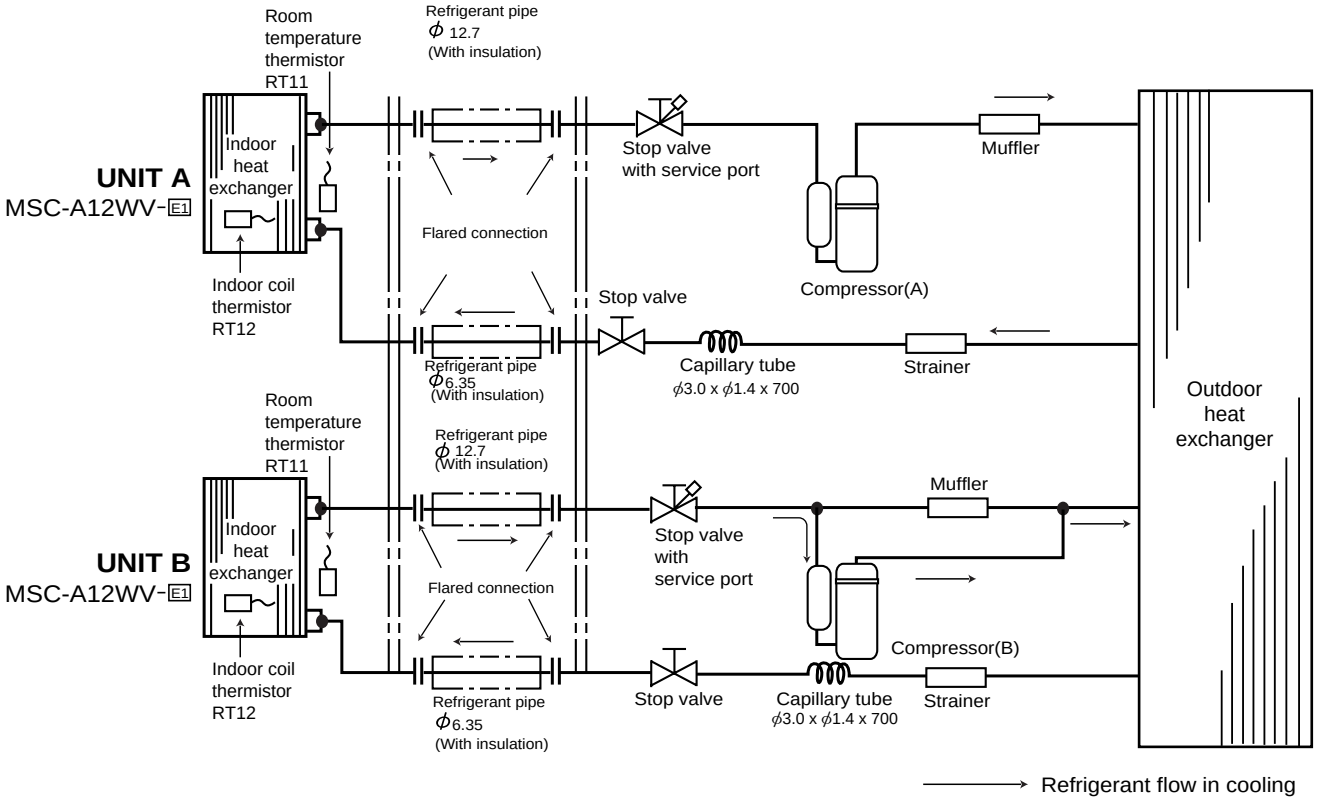
Unit : mm

MSC-A12WV-E1

MUX-A25WV-E1

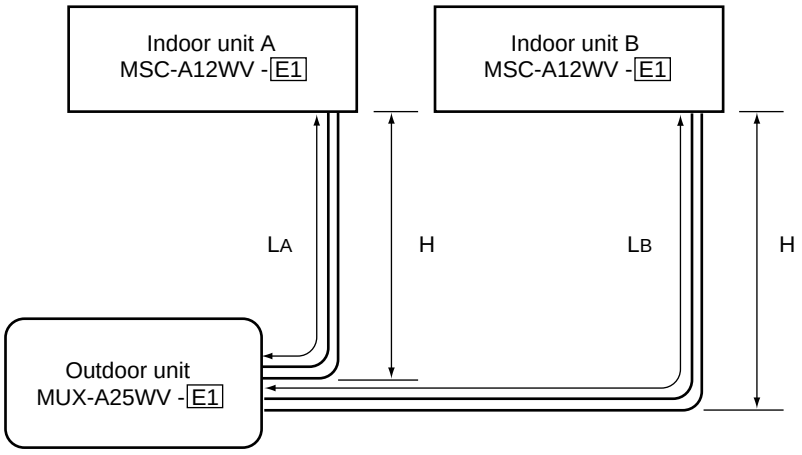
INDOOR UNIT

OUTDOOR UNIT



MSX-A25WV-E1

MAX.REFRIGERANT PIPING LENGTH & MAX. HEIGHT DIFFERENCE



	UNIT No.	Pipe length		Height difference (H)	No. of bends
Max. limits	A	LA	15m	10m	10
	B	LB	15m	10m	10

ADDITIONAL REFRIGERANT CHARGE (R410A:g)

		Refrigerant piping length (one way)								
A unit	Outdoor unit precharged	7m	8m	9m	10m	11m	12m	13m	14m	15m
	950g	0	20	40	60	80	100	120	140	160
B unit	Outdoor unit precharged	Refrigerant piping length (one way)								
		7m	8m	9m	10m	11m	12m	13m	14m	15m
	950g	0	20	40	60	80	100	120	140	160

PIPING PREPARATION

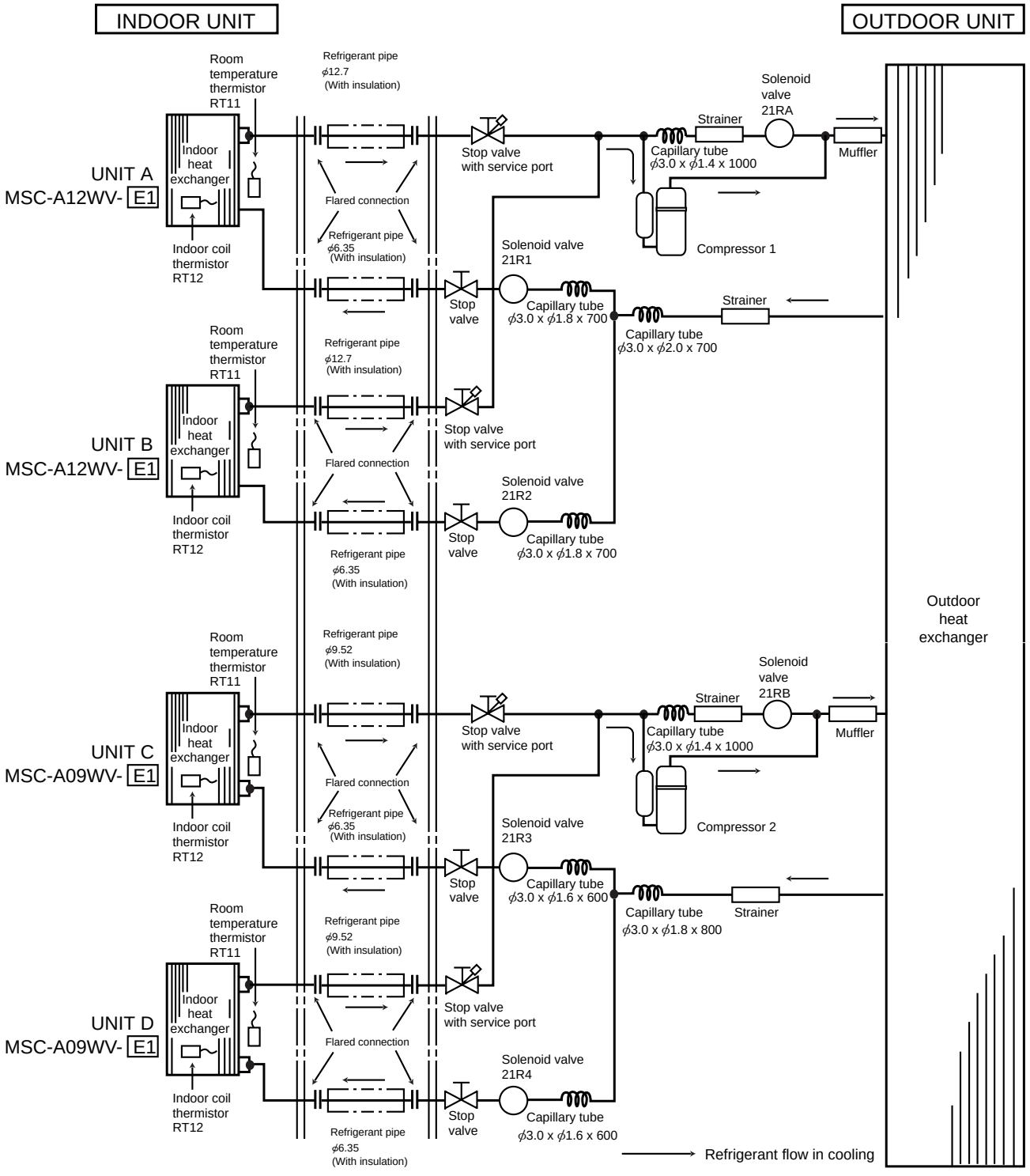
①Table below shows the specifications of pipes commercially available.

UNIT No.	Pipe	Outside diameter	Insulation thickness	Insulation material
		mm		
A and B unit	For liquid	6.35	8mm	Heat resisting foam plastic 0.045 specific gravity
	For gas	12.7	8mm	

②Ensure that the 2 refrigerant pipes are well insulated to prevent condensation.
③Refrigerant bending radius must be 10cm or more.

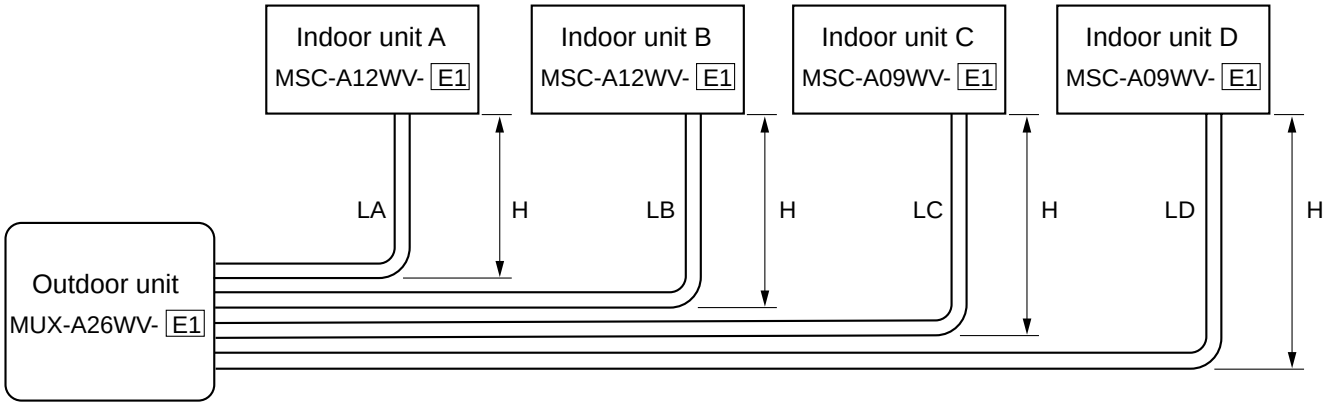
MSC-A09WV- E1
MSC-A12WV- E1

MUX-A26WV- E1 **Unit : mm**



MSX-A26WV-E1

MAX.REFRIGERANT PIPING LENGTH & MAX. HEIGHT DIFFERENCE



	UNIT No.	Pipe length				Height difference (H)	No. of bends	
Max. limits	A	LA	15m	LA + LB	Total 30m	10m	10	Total 15
	B	LB	15m			10m	10	
	C	LC	15m	LC + LD	Total 30m	10m	10	Total 15
	D	LD	15m			10m	10	

ADDITIONAL REFRIGERANT CHARGE (R410A:g)

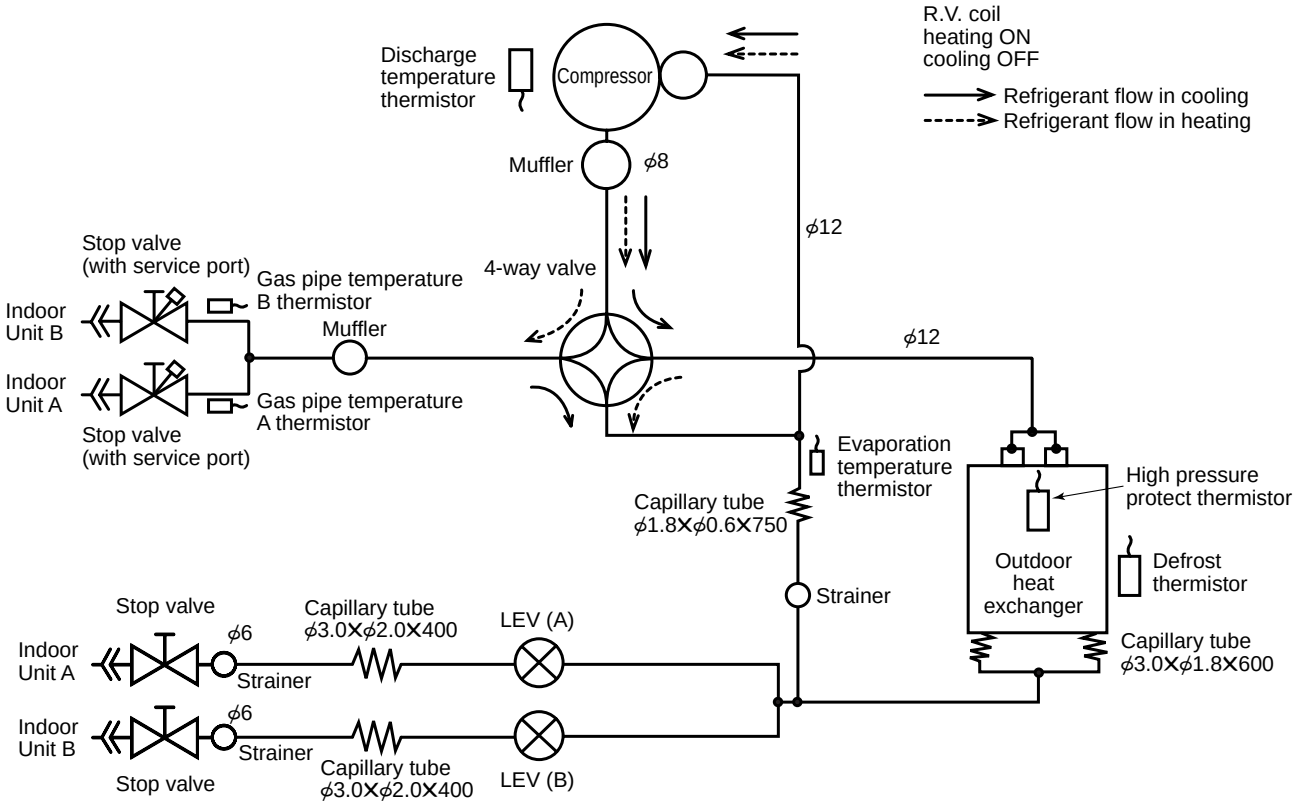
UNIT No.	Outdoor unit precharged	Refrigerant piping length (one way, 2 unit total)																				
		10 m	11 m	12 m	13 m	14 m	15 m	16 m	17 m	18 m	19 m	20 m	21 m	22 m	23 m	24 m	25 m	26 m	27 m	28 m	29 m	30 m
A unit + B unit	1050g	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200
C unit + D unit	1050g	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200

PIPING PREPARATION

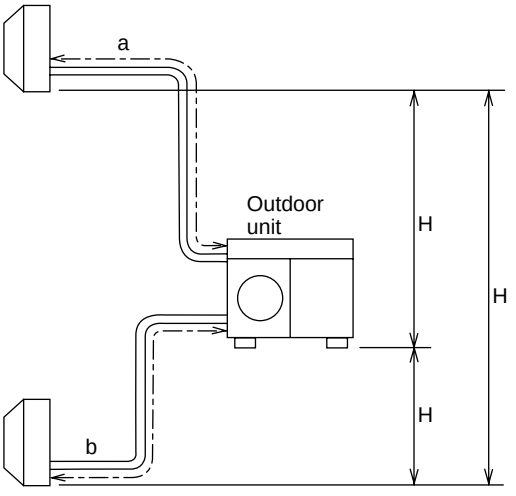
UNIT No.	Pipe	Outside diameter	Insulation thickness	Insulation material
		mm		
A and B unit	For liquid	6.35	8mm	Heat resisting foam plastic 0.045 specific gravity
	For gas	12.7	8mm	
C and D unit	For liquid	6.35	8mm	
	For gas	9.52	8mm	

MXZ-A18WV - E1

Unit:mm



MAX REFRIGERANT PIPING LENGTH
MXY-A18WV - E1



Piping length each indoor unit (a, b)	20m
Total piping length (a+b)	30m
Height difference between units (H)	10m
Bending point for each unit	15
Total bending point	30

❋It does not matter which unit is higher.

- Refrigerant pipe diameter is different according to indoor unit to be connected. When using extension pipes, refer to the tables below.
- When diameter of refrigerant pipe is different from that of outdoor unit union, use optional Different-diameter pipe. For further information on Different-diameter pipe, see page BACK COVER.

Unit : mm (inch)

Indoor unit			Extension pipe diameter	
class	Pipe diameter			
07/09	Liquid	6.35(1/4)	Liquid	6.35(1/4)
	Gas	9.52(3/8)	Gas	9.52(3/8)
12	Liquid	6.35(1/4)	Liquid	6.35(1/4)
	Gas	12.7(1/2)	Gas	12.7(1/2)

Outdoor unit union diameter		
For		
Indoor unit A	Liquid	6.35(1/4)
	Gas	9.52(3/8)
Indoor unit B	Liquid	6.35(1/4)
	Gas	9.52(3/8)

10 PERFORMANCE CURVES

MSC-A07WV -E1 MU-A07WV -E1 MUH-A07WV -E1 MUX-A10WV -E1 MUX-A25WV -E1
MSC-A09WV -E1 MU-A09WV -E1 MUH-A09WV -E1 MUX-A19WV -E1 MUX-A26WV -E1
MSC-A12WV -E1 MU-A12WV -E1 MUH-A12WV -E1 MUX-A20WV -E1 MXZ-A18WV -E1

The standard data contained in these specifications apply only to the operation of the air conditioner under normal conditions, since operating conditions vary according to the areas where these units are installed. The following information has been provided to clarify the operating characteristics of the air conditioner under the conditions indicated by the performance curve.

(1) GUARANTEED VOLTAGE

198~264V

(2) AIR FLOW

Air flow should be set at MAX.

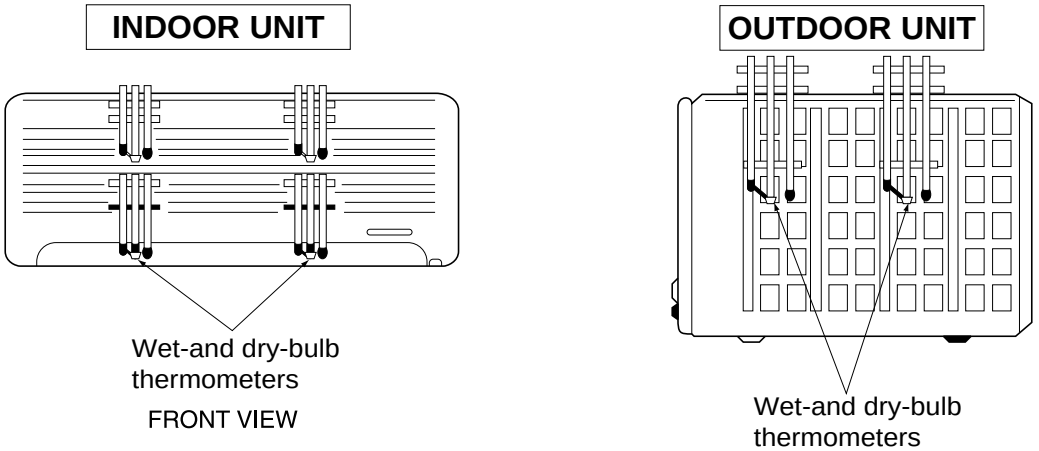
(3) MAIN READINGS

(1) Indoor intake air wet-bulb temperature :	°CWB	Cooling
(2) Indoor outlet air wet-bulb temperature :	°CWB	
(3) Outdoor intake air dry-bulb temperature :	°CDB	
(4) Total input:	W	
(5) Indoor intake air dry-bulb temperature :	°CDB	Heating **<MUH-A07/A09/A12WV>**
(6) Outdoor intake air wet-bulb temperature :	°CWB	
(7) Total input :	W	

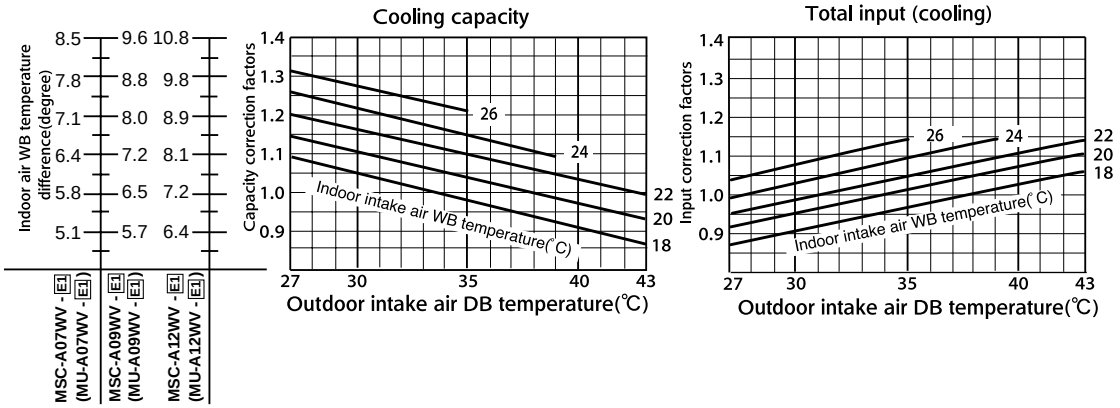
Indoor air wet/dry-bulb temperature difference on the left side of the chart on page 41,42 and 45 shows the difference between the indoor intake air wet/dry-bulb temperature and the indoor outlet air wet/dry-bulb temperature for your reference at service.

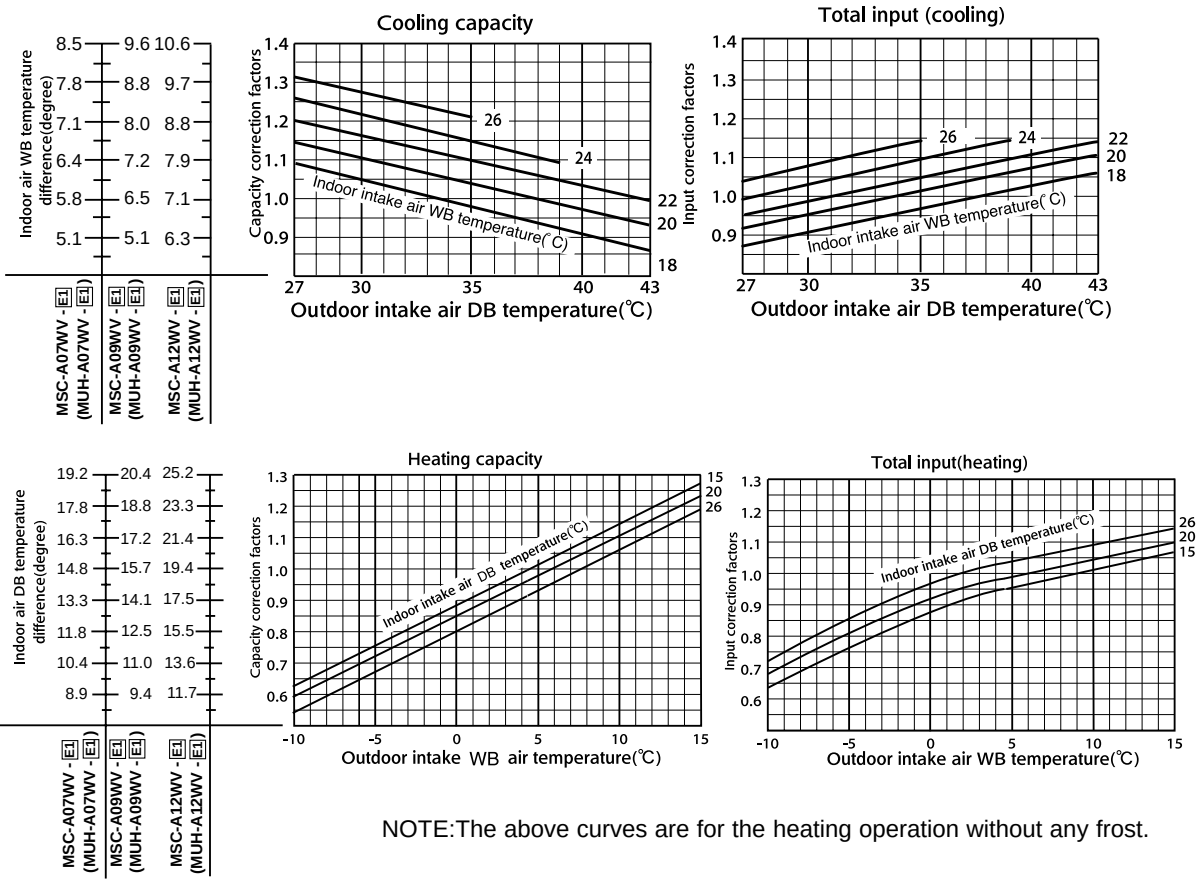
How to measure the indoor air wet-bulb/dry-bulb temperature difference

1. Attach at least 2 sets of wet-and dry-bulb thermometers to the indoor air intake as shown in the figure, and at least 2 sets of wet-and dry-bulb thermometers to the indoor air outlet. The thermometers must be attached to the position where air speed is high.
2. Attach at least 2 sets of wet-and dry-bulb thermometers to the outdoor air intake. Cover the thermometers to prevent direct rays of the sun.
3. Check that the air filter is cleaned.
4. Open windows and doors of room.
5. Press the EMERGENCY OPERATION switch once(twice) to start the EMERGENCY COOL (HEAT**<MUH-A07/A09/A12WV>**) MODE.
6. When system stabilizes after more than 15 minutes, measure temperature and take an average temperature.
7. 10 minutes later, measure temperature again and check that the temperature does not change.



10-1.CAPACITY AND THE INPUT CURVES




Cooling capacity
Total input (cooling)
Indoor air WB temperature difference(degree)
Capacity correction factors
Input correction factors
Indoor intake air WB temperature(℃)
Outdoor intake air DB temperature(℃)
MSC-A07WV - E1 (MUH-A07WV - E1)
MSC-A09WV - E1 (MUH-A09WV - E1)
MSC-A12WV - E1 (MUH-A12WV - E1)
Heating capacity
Total input(heating)
Indoor air DB temperature difference(degree)
Indoor intake air DB temperature(℃)
Outdoor intake WB air temperature(℃)
Outdoor intake air WB temperature(℃)

NOTE:The above curves are for the heating operation without any frost.

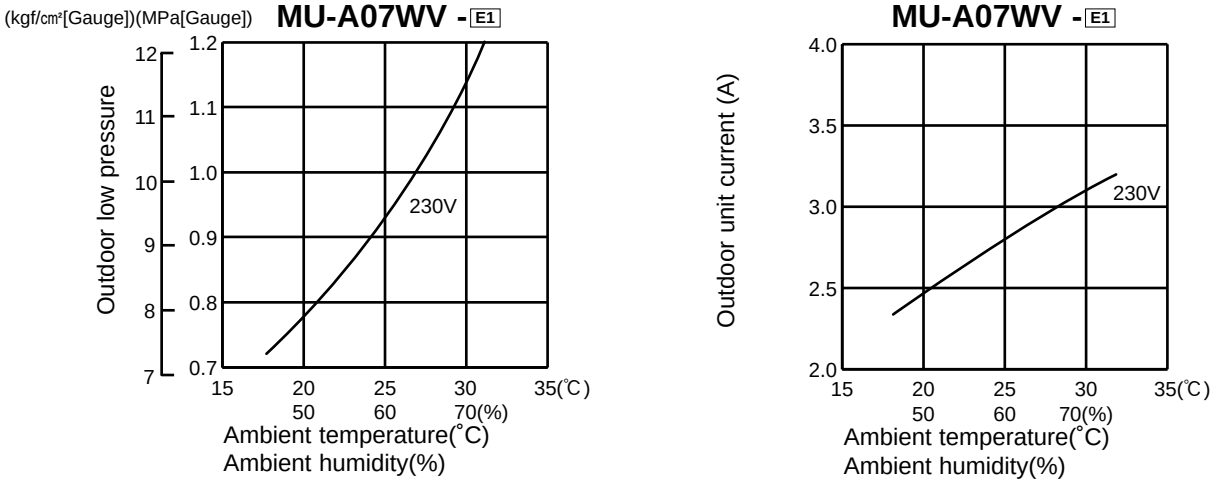
10-2.OUTDOOR LOW PRESSURE AND OUTDOOR UNIT CURRENT
COOL operation

① Both indoor and outdoor unit are under the same temperature/humidity condition.

Dry-bulb temperature	Relative humidity(%)
20	50
25	60
30	70

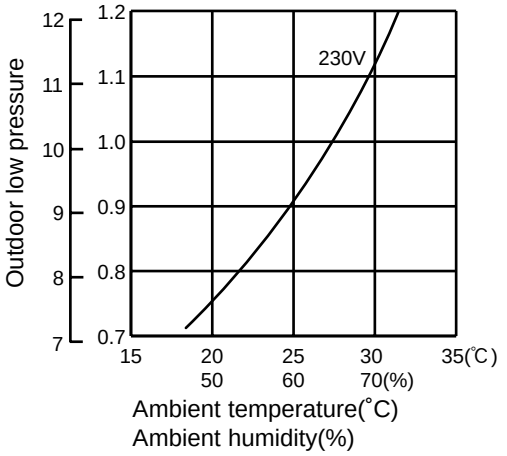
② Air flow should be set at MAX.

③ The unit of pressure has been changed to MPa on the international system of units(SI unit system).
The conversion factor is : **1(MPa[Gauge]) =10.2(kgf/㎠[Gauge])**

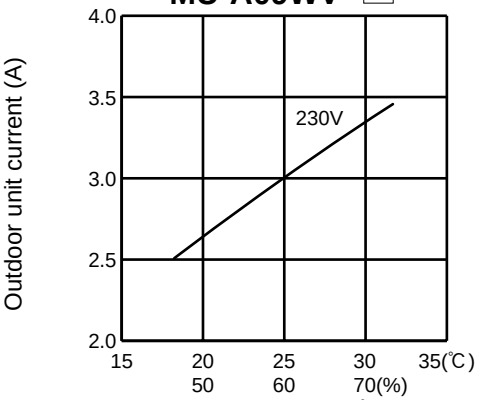


(kgf/cm²[Gauge])(MPa[Gauge])

MU-A09WV - E1

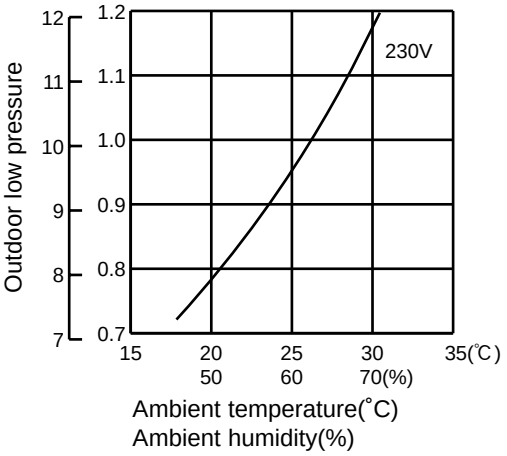


MU-A09WV - E1

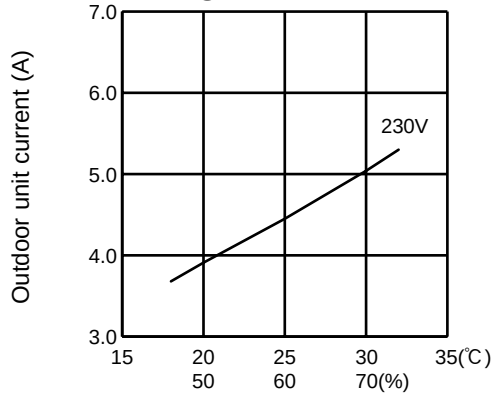


(kgf/cm²[Gauge])(MPa[Gauge])

MU-A12WV - E1

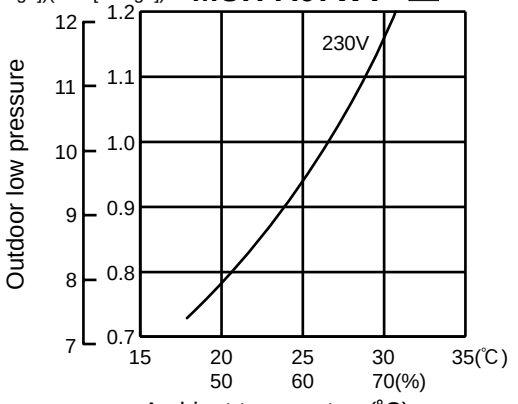


MU-A12WV - E1

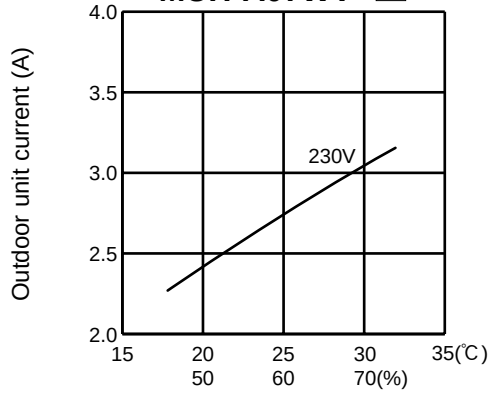


(kgf/cm²[Gauge])(MPa[Gauge])

MUH-A07WV - E1

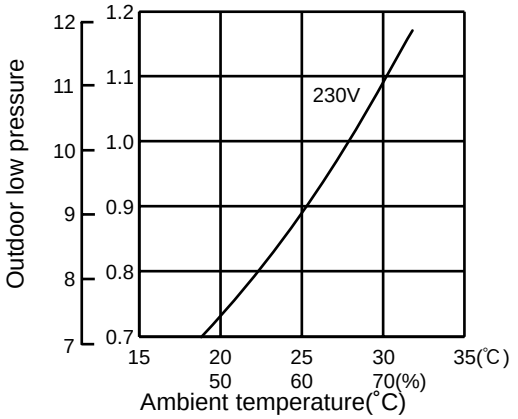


MUH-A07WV - E1

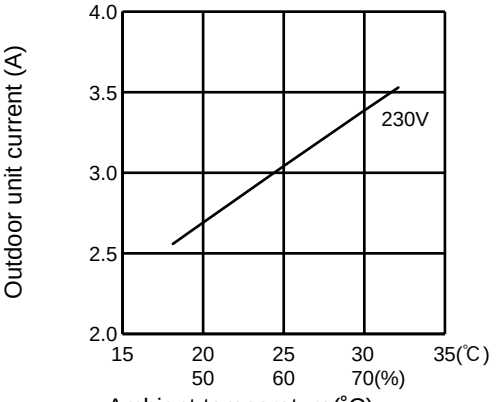


(kgf/cm²[Gauge])(MPa[Gauge])

MUH-A09WV - E1

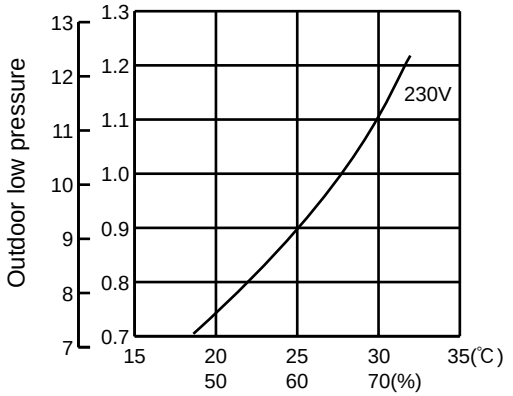


MUH-A09WV - E1



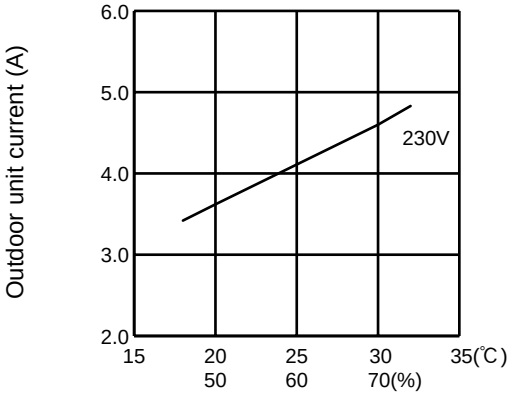
(kgf/㎠[Gauge])(MPa[Gauge])

MUH-A12WV -E1



Ambient temperature(˚C)
Ambient humidity(%)

MUH-A12WV -E1



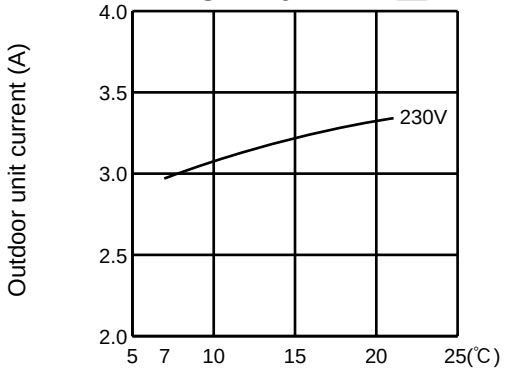
Ambient temperature(˚C)
Ambient humidity(%)

HEAT operation

Condition indoor:Dry bulb temperature 20.0°C
Wet bulb temperature 14.5°C

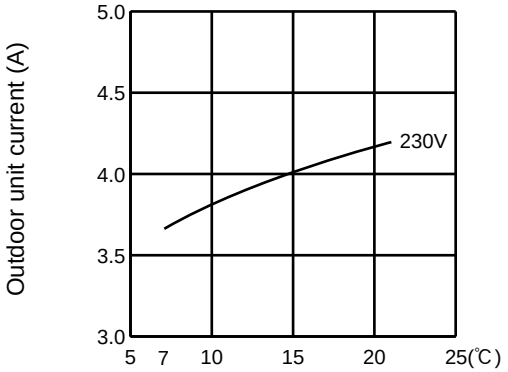
Outdoor:Dry bulb temperature 7,15,20°C
Wet bulb temperature 6,12,14.5°C

MUH-A07WV -E1



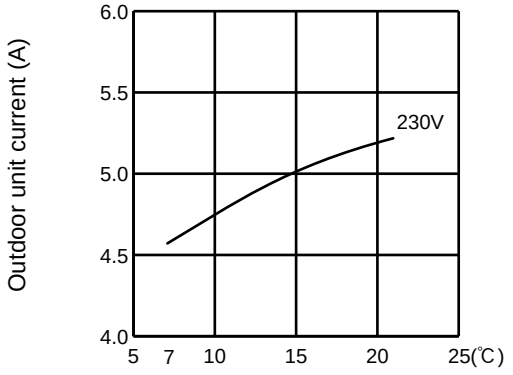
Ambient temperature(˚C)

MUH-A09WV -E1



Ambient temperature(˚C)

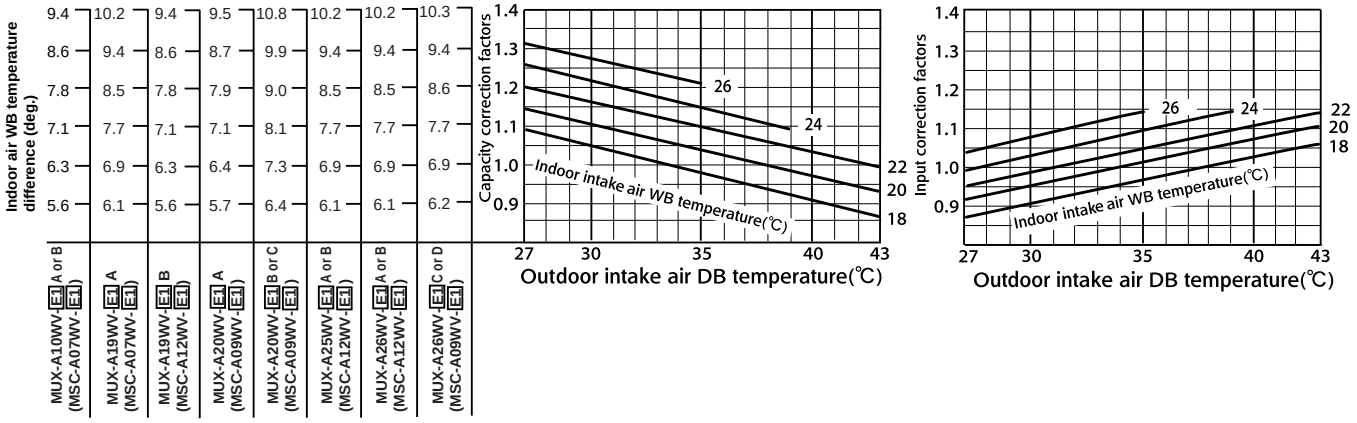
MUH-A12WV -E1



Ambient temperature(˚C)

MSC-A07WV -E1 MUX-A10WV -E1 MUX-A25WV -E1
MSC-A09WV -E1 MUX-A19WV -E1 MUX-A26WV -E1
MSC-A12WV -E1 MUX-A20WV -E1

10-3.CAPACITY AND THE INPUT CURVES (ONE INDOOR UNIT WITH ONE OUTDOOR UNIT)


Indoor air WB temperature difference (deg.)
9.4 10.2 9.4 9.5 10.8 10.2 10.2 10.3
8.6 9.4 8.6 8.7 9.9 9.4 9.4 9.4
7.8 8.5 7.8 7.9 9.0 8.5 8.5 8.6
7.1 7.7 7.1 7.1 8.1 7.7 7.7 7.7
6.3 6.9 6.3 6.4 7.3 6.9 6.9 6.9
5.6 6.1 5.6 5.7 6.4 6.1 6.1 6.2
MUX-A10WV-E1 A or B (MSC-A07WV-E1)
MUX-A19WV-E1 A (MSC-A07WV-E1)
MUX-A19WV-E1 B (MSC-A12WV-E1)
MUX-A20WV-E1 A (MSC-A09WV-E1)
MUX-A20WV-E1 B or C (MSC-A09WV-E1)
MUX-A25WV-E1 A or B (MSC-A12WV-E1)
MUX-A26WV-E1 A or B (MSC-A12WV-E1)
MUX-A26WV-E1 C or D (MSC-A09WV-E1)
Capacity correction factors
1.4 1.3 1.2 1.1 1.0 0.9
26
24
22
20
18
Indoor intake air WB temperature(℃)
27 30 35 40 43
Outdoor intake air DB temperature(℃)
Input correction factors
1.4 1.3 1.2 1.1 1.0 0.9
26
24
22
20
18
Indoor intake air WB temperature(℃)
27 30 35 40 43
Outdoor intake air DB temperature(℃)

10-4.OUTDOOR LOW PRESSURE AND OUTDOOR UNIT CURRENT

COOL operation

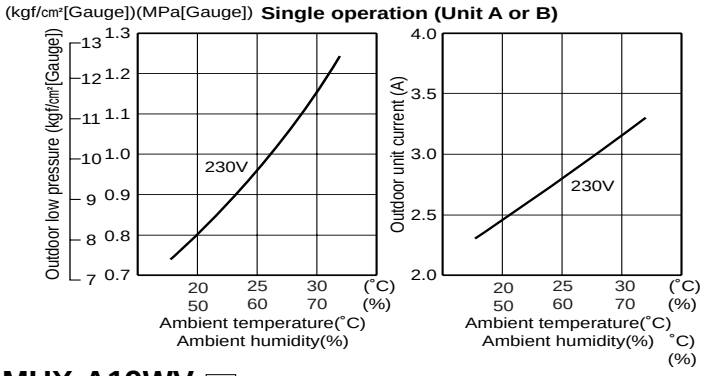
① Both indoor and outdoor unit are under same temperature/humidity condition.

Dry-bulb temperature	Relative humidity (%)
20	50
25	60
30	70

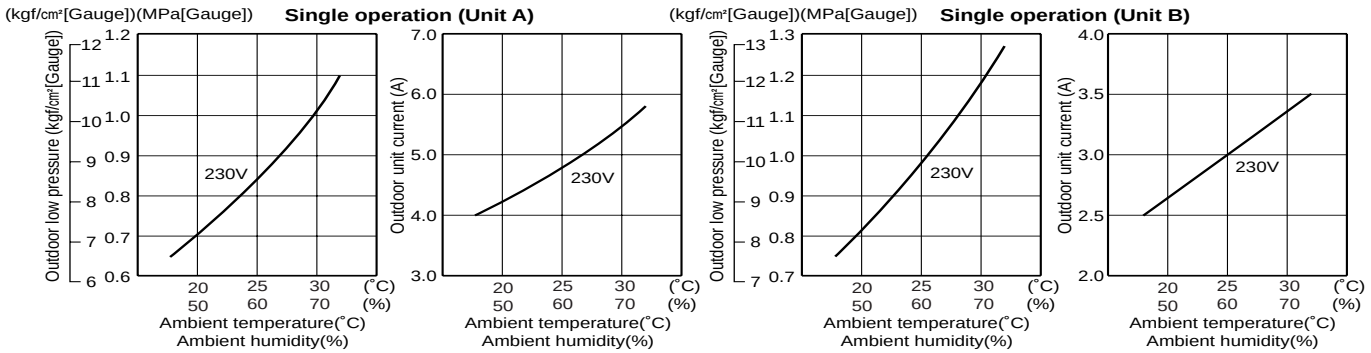
② Air flow should be set at MAX.

③ The unit of pressure has been changed to MPa on the international system of units(SI unit system).
The conversion factor is : **1(MPa[Gauge]) =10.2(kgf/㎠[Gauge])**

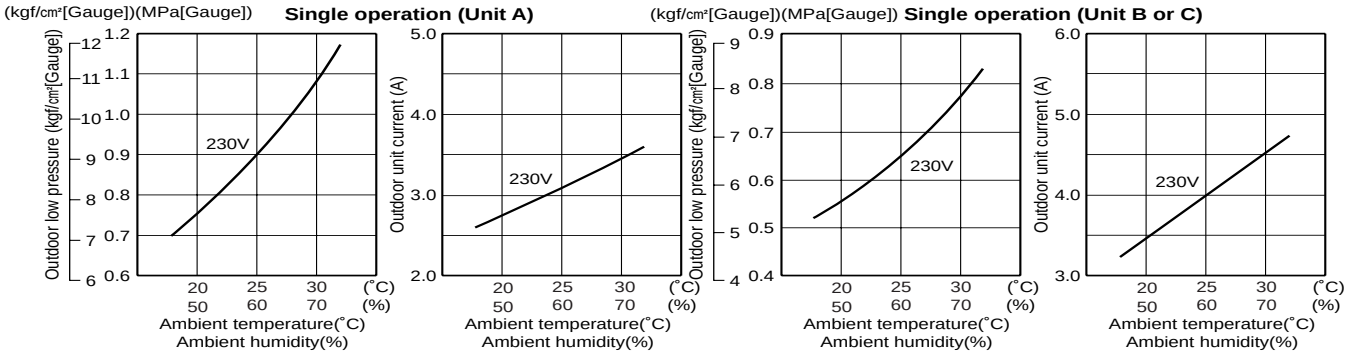
MUX-A10WV-E1



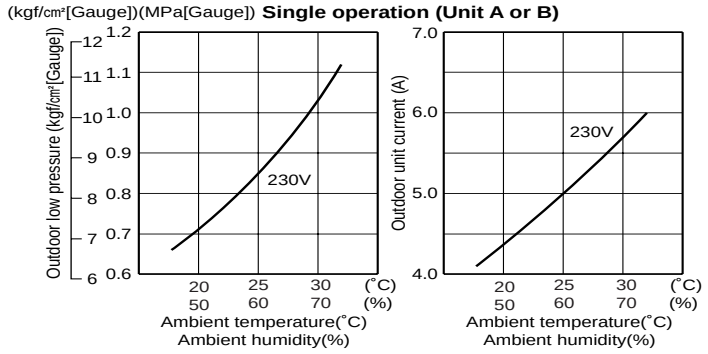
MUX-A19WV-E1



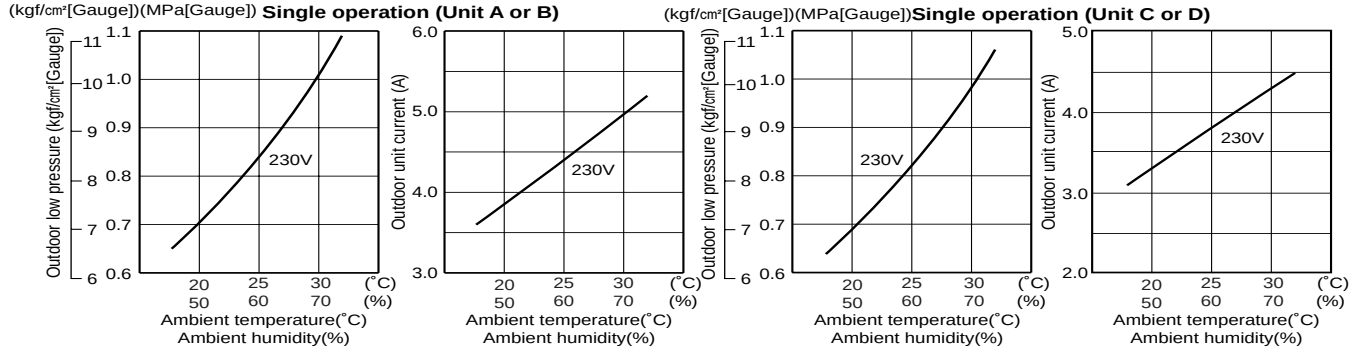
MUX-A20WV-E1



MUX-A25WV-E1

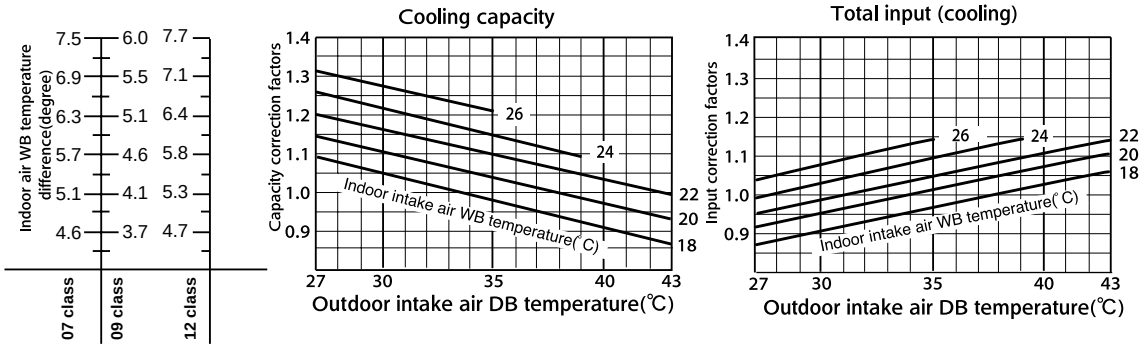


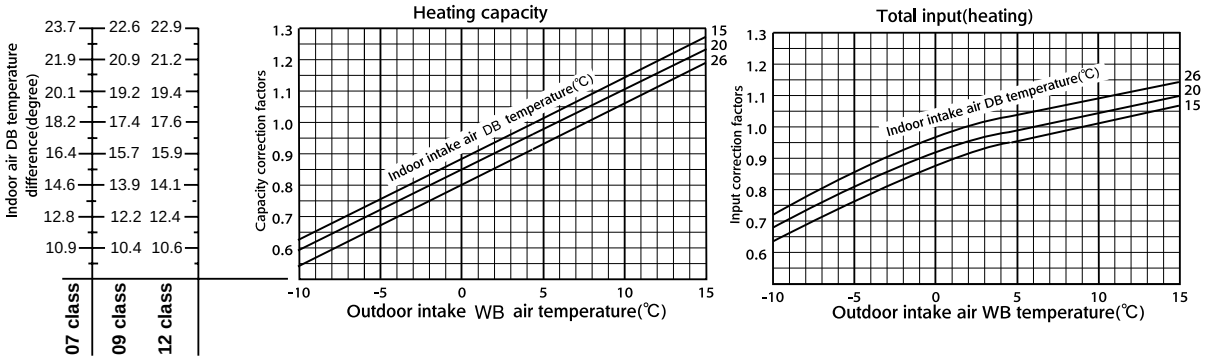
MUX-A26WV-E1



MXZ-A18WV-E1

10-5. CAPACITY AND THE INPUT CURVES



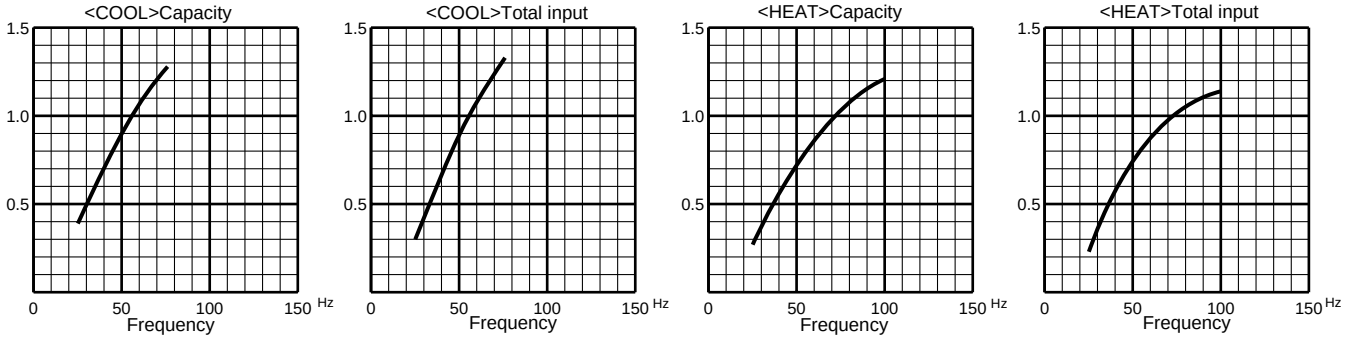


10-6. Capacity and input correction by inverter output frequency (OUTDOOR UNIT : MXZ-A18WV)

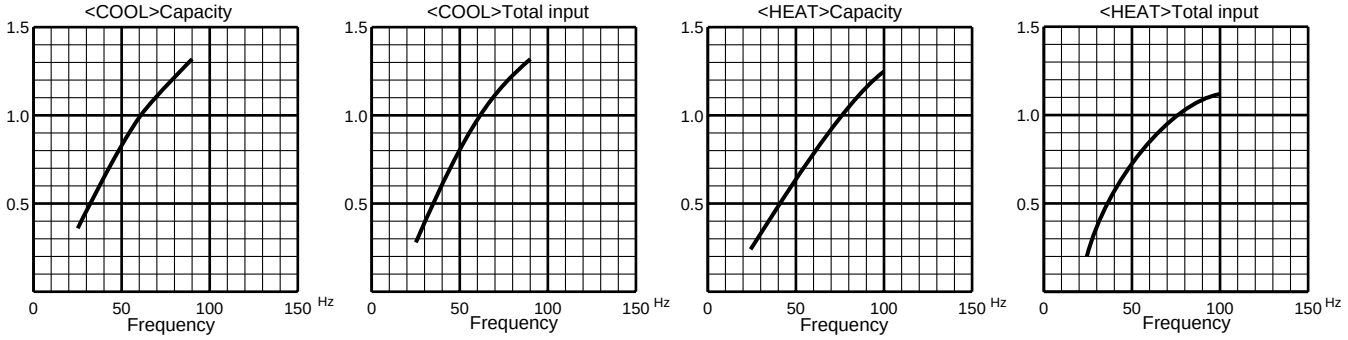
NOTE 1 : Compressor running frequency at 33Hz (COOL) or 45Hz (HEAT).

NOTE 2 : The dotted line on graphs connects the frequency range in normal operation shown by the full line and the frequency in test run shown by the point.

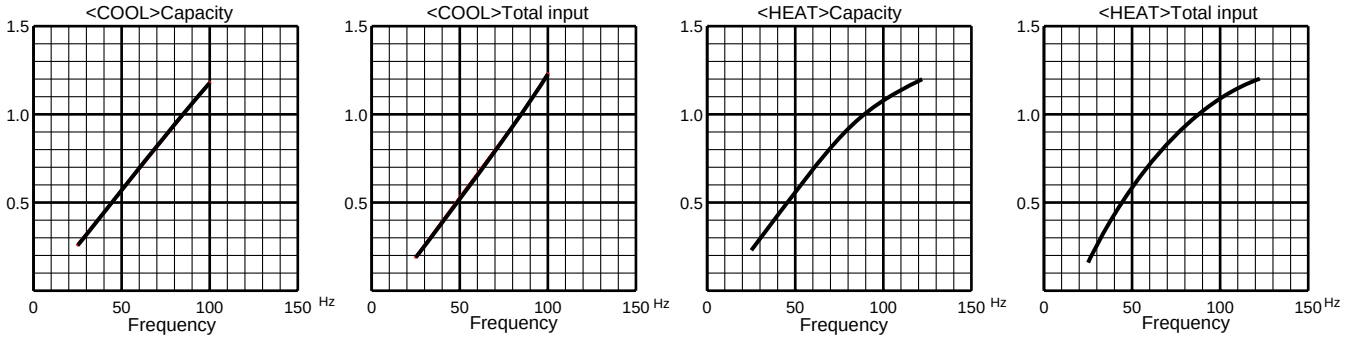
1. 07-class unit in single operation



2. 09-class unit in single operation



3. 12-class unit in single operation



10-7. Outdoor low pressure and outdoor unit current

1. 07-class unit in single operation (OUTDOOR UNIT : MXZ-A18WV)

NOTE: The unit of pressure has been changed to MPa on the international system of units(SI unit system).
The converted score against the traditional unit system can be gotten according to the formula below.

1(MPa • G) =10.2(kgf/㎠ • G)

(1) COOL operation

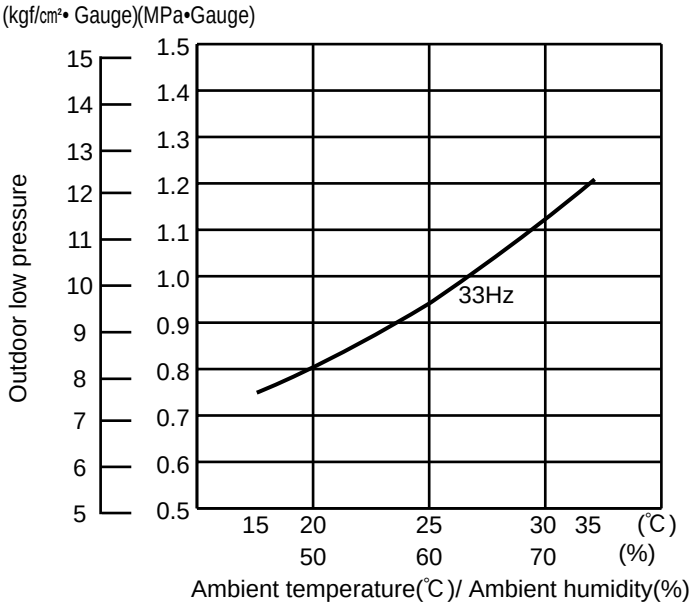
①Both indoor and outdoor units are under the same temperature/humidity condition.

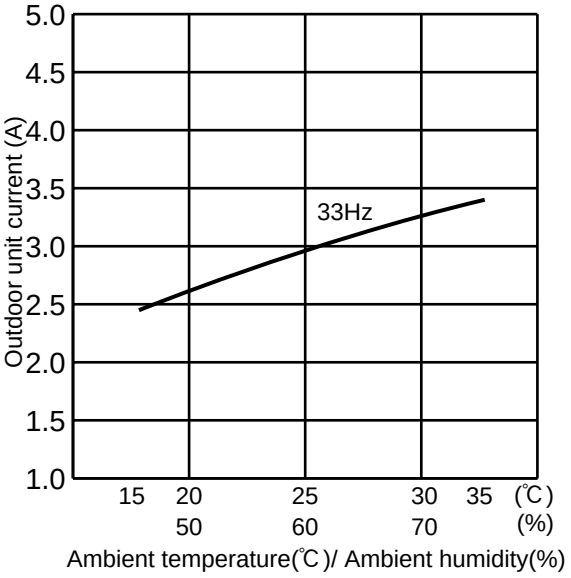
Dry-bulb temperature(°C)	Relative humidity(%)
20	50
25	60
30	70

②Air flow speed : HI

③Inverter output frequency : 55Hz

<How to work fixed-frequency operation>
1.Set emergency switch to COOL or HEAT. The switch is located on indoor unit.
2.Press emergency run ON/OFF button.
3.Compressor starts running at 33Hz (COOL) or 45Hz (HEAT).
4.Indoor fan runs at HI speed and continues for 30 minutes.
5.To cancel this operation, press emergency run ON/OFF button or any button on remote controller.





(2) HEAT operation

① Indoor

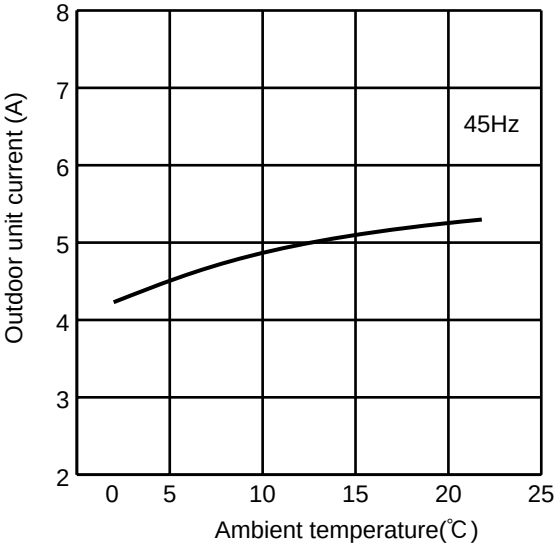
DB(°C)	20.0
WB(°C)	14.5

Outdoor

DB(°C)	2	7	15	20.0
WB(°C)	1	6	12	14.5

② Set air flow to Hi speed.

③ Inverter output frequency is 80Hz.



2. 09-class unit in single operation (OUTDOOR UNIT : MXZ-A18WV)

NOTE: The unit of pressure has been changed to MPa on the international system of units(SI unit system).
The converted score against the traditional unit system can be gotten according to the formula below.

1(MPa • G) =10.2(kgf/㎠ • G)

(1) COOL operation

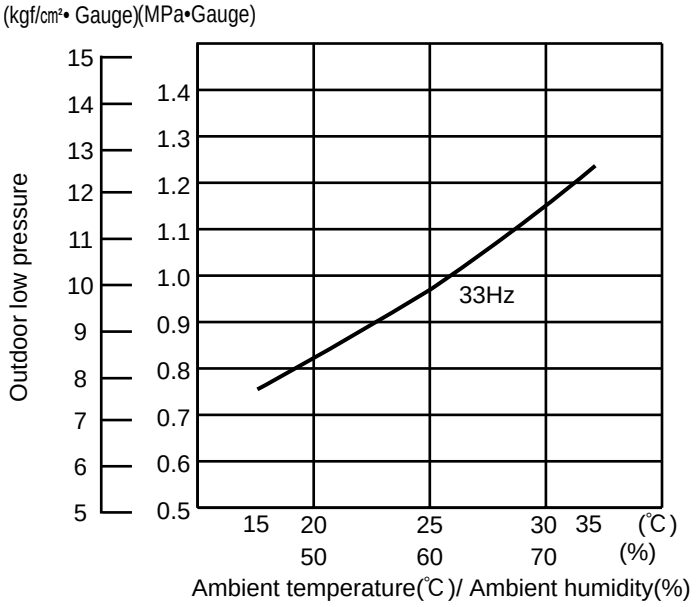
①Both indoor and outdoor units are under the same temperature/humidity condition.

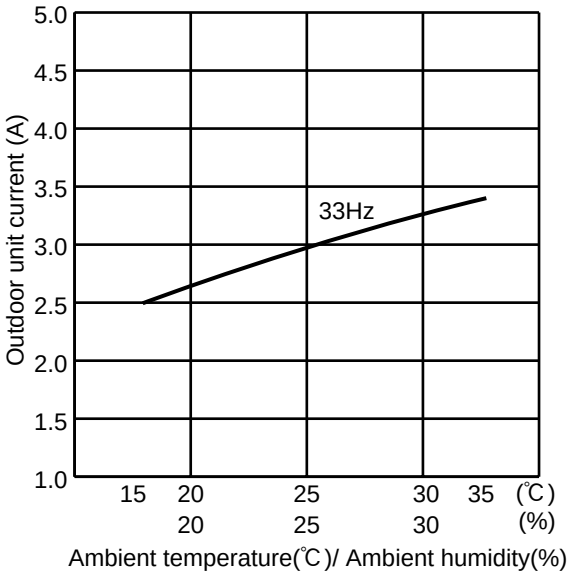
Dry-bulb temperature(°C)	Relative humidity(%)
20	50
25	60
30	70

②Air flow speed : HI

③Inverter output frequency : 55Hz

<How to work fixed-frequency operation>
1.Set emergency switch to COOL or HEAT. The switch is located on indoor unit.
2.Press emergency run ON/OFF button.
3.Compressor starts running at 33Hz (COOL) or 45Hz (HEAT).
4.Indoor fan runs at HI speed and continues for 30 minutes.
5.To cancel this operation, press emergency run ON/OFF button or any button on remote controller.





(2) HEAT operation

① Indoor

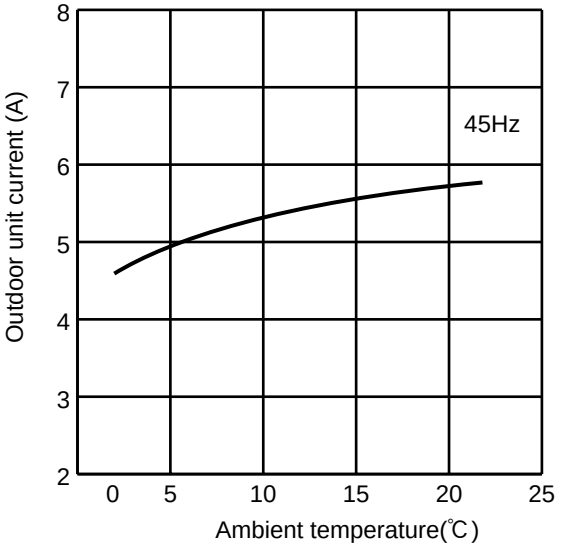
DB(°C)	20.0
WB(°C)	14.5

Outdoor

DB(°C)	2	7	15	20.0
WB(°C)	1	6	12	14.5

② Set air flow to Hi speed.

③ Inverter output frequency is 80Hz.



3. 12-class unit in single operation (OUTDOOR UNIT : MXZ-A18WV)

NOTE: The unit of pressure has been changed to MPa on the international system of units(SI unit system).
The converted score against the traditional unit system can be gotten according to the formula below.

1(MPa • G) =10.2(kgf/㎠ • G)

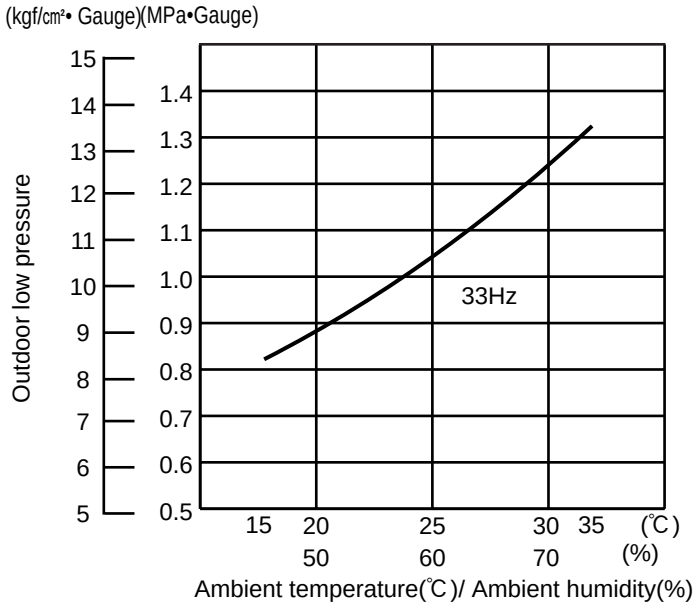
(1) COOL operation

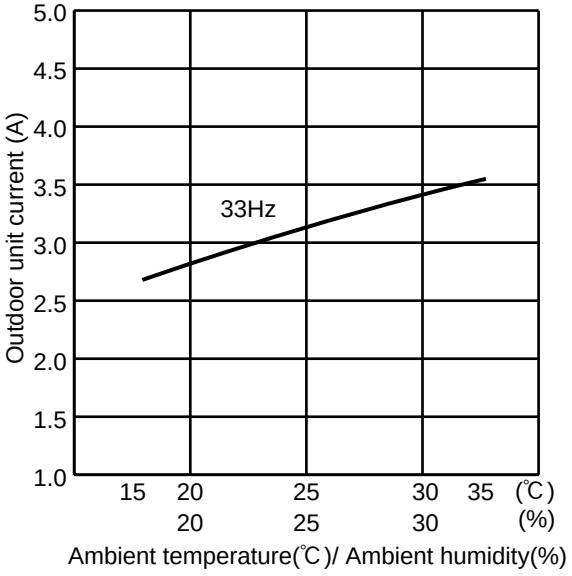
①Both indoor and outdoor units are under the same temperature/humidity condition.

Dry-bulb temperature(°C)	Relative humidity(%)
20	50
25	60
30	70

②Air flow speed : HI
③Inverter output frequency : 55Hz

<How to work fixed-frequency operation>
1.Set emergency switch to COOL or HEAT. The switch is located on indoor unit.
2.Press emergency run ON/OFF button.
3.Compressor starts running at 33Hz (COOL) or 45Hz (HEAT).
4.Indoor fan runs at HI speed and continues for 30 minutes.
5.To cancel this operation, press emergency run ON/OFF button or any button on remote controller.





(2) HEAT operation

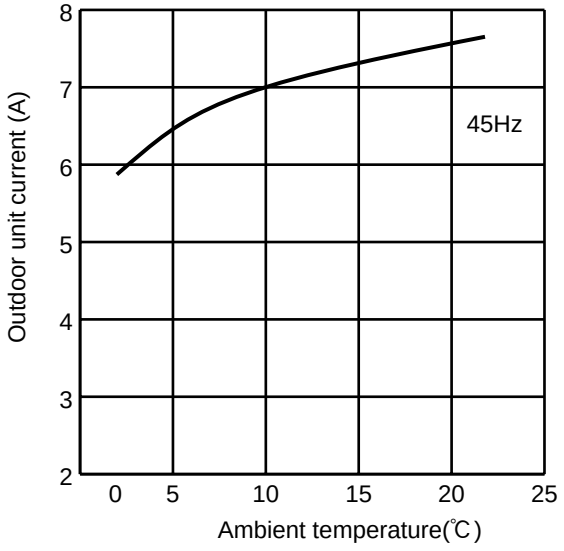
① Indoor

DB(°C)	20.0
WB(°C)	14.5

Outdoor

DB(°C)	2	7	15	20.0
WB(°C)	1	6	12	14.5

② Set air flow to Hi speed.
③ Inverter output frequency is 80Hz.



PERFORMANCE DATA
COOL operation (230V)

MSC-A07WV -E1 : MU-A07WV -E1

CAPACITY : 2.3(kW) SHF : 0.74 INPUT : 710(W)

		OUTDOOR DB(℃)															
INDOOR DB(℃)	INDOOR WB(℃)	21				25				27				30			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	2.70	1.51	0.56	568	2.59	1.45	0.56	596	2.48	1.39	0.56	625	2.39	1.34	0.56	653
21	20	2.82	1.24	0.44	596	2.70	1.19	0.44	632	2.62	1.15	0.44	646	2.53	1.11	0.44	675
22	18	2.70	1.62	0.60	568	2.59	1.55	0.60	596	2.48	1.49	0.60	625	2.39	1.44	0.60	653
22	20	2.82	1.35	0.48	596	2.70	1.30	0.48	632	2.62	1.26	0.48	646	2.53	1.21	0.48	675
22	22	2.93	1.06	0.36	618	2.83	1.02	0.36	657	2.76	0.99	0.36	675	2.65	0.95	0.36	703
23	18	2.70	1.73	0.64	568	2.59	1.66	0.64	596	2.48	1.59	0.64	625	2.39	1.53	0.64	653
23	20	2.82	1.47	0.52	596	2.70	1.41	0.52	632	2.62	1.36	0.52	646	2.53	1.32	0.52	675
23	22	2.93	1.17	0.40	618	2.83	1.13	0.40	657	2.76	1.10	0.40	675	2.65	1.06	0.40	703
24	18	2.70	1.84	0.68	568	2.59	1.76	0.68	596	2.48	1.69	0.68	625	2.39	1.63	0.68	653
24	20	2.82	1.58	0.56	596	2.70	1.51	0.56	632	2.62	1.47	0.56	646	2.53	1.42	0.56	675
24	22	2.93	1.29	0.44	618	2.83	1.24	0.44	657	2.76	1.21	0.44	675	2.65	1.16	0.44	703
24	24	3.08	0.99	0.32	646	2.97	0.95	0.32	682	2.90	0.93	0.32	703	2.81	0.90	0.32	738
25	18	2.70	1.95	0.72	568	2.59	1.86	0.72	596	2.48	1.79	0.72	625	2.39	1.72	0.72	653
25	20	2.82	1.69	0.60	596	2.70	1.62	0.60	632	2.62	1.57	0.60	646	2.53	1.52	0.60	675
25	22	2.93	1.41	0.48	618	2.83	1.36	0.48	657	2.76	1.32	0.48	675	2.65	1.27	0.48	703
25	24	3.08	1.11	0.36	646	2.97	1.07	0.36	682	2.90	1.04	0.36	703	2.81	1.01	0.36	738
26	18	2.70	2.05	0.76	568	2.59	1.97	0.76	596	2.48	1.89	0.76	625	2.39	1.82	0.76	653
26	20	2.82	1.80	0.64	596	2.70	1.73	0.64	632	2.62	1.68	0.64	646	2.53	1.62	0.64	675
26	22	2.93	1.52	0.52	618	2.83	1.47	0.52	657	2.76	1.44	0.52	675	2.65	1.38	0.52	703
26	24	3.08	1.23	0.40	646	2.97	1.19	0.40	682	2.90	1.16	0.40	703	2.81	1.12	0.40	738
26	26	3.17	0.89	0.28	682	3.08	0.86	0.28	717	3.04	0.85	0.28	738	2.94	0.82	0.28	760
27	18	2.70	2.16	0.80	568	2.59	2.07	0.80	596	2.48	1.99	0.80	625	2.39	1.91	0.80	653
27	20	2.82	1.92	0.68	596	2.70	1.84	0.68	632	2.62	1.78	0.68	646	2.53	1.72	0.68	675
27	22	2.93	1.64	0.56	618	2.83	1.58	0.56	657	2.76	1.55	0.56	675	2.65	1.48	0.56	703
27	24	3.08	1.36	0.44	646	2.97	1.31	0.44	682	2.90	1.28	0.44	703	2.81	1.23	0.44	738
27	26	3.17	1.02	0.32	682	3.08	0.99	0.32	717	3.04	0.97	0.32	738	2.94	0.94	0.32	760
28	18	2.70	2.27	0.84	568	2.59	2.17	0.84	596	2.48	2.09	0.84	625	2.39	2.01	0.84	653
28	20	2.82	2.03	0.72	596	2.70	1.95	0.72	632	2.62	1.89	0.72	646	2.53	1.82	0.72	675
28	22	2.93	1.76	0.60	618	2.83	1.70	0.60	657	2.76	1.66	0.60	675	2.65	1.59	0.60	703
28	24	3.08	1.48	0.48	646	2.97	1.42	0.48	682	2.90	1.39	0.48	703	2.81	1.35	0.48	738
28	26	3.17	1.14	0.36	682	3.08	1.11	0.36	717	3.04	1.09	0.36	738	2.94	1.06	0.36	760
29	18	2.70	2.38	0.88	568	2.59	2.28	0.88	596	2.48	2.19	0.88	625	2.39	2.10	0.88	653
29	20	2.82	2.14	0.76	596	2.70	2.05	0.76	632	2.62	1.99	0.76	646	2.53	1.92	0.76	675
29	22	2.93	1.88	0.64	618	2.83	1.81	0.64	657	2.76	1.77	0.64	675	2.65	1.69	0.64	703
29	24	3.08	1.60	0.52	646	2.97	1.54	0.52	682	2.90	1.51	0.52	703	2.81	1.46	0.52	738
29	26	3.17	1.27	0.40	682	3.08	1.23	0.40	717	3.04	1.21	0.40	738	2.94	1.18	0.40	760
30	18	2.70	2.49	0.92	568	2.59	2.38	0.92	596	2.48	2.29	0.92	625	2.39	2.20	0.92	653
30	20	2.82	2.25	0.80	596	2.70	2.16	0.80	632	2.62	2.10	0.80	646	2.53	2.02	0.80	675
30	22	2.93	1.99	0.68	618	2.83	1.92	0.68	657	2.76	1.88	0.68	675	2.65	1.80	0.68	703
30	24	3.08	1.73	0.56	646	2.97	1.66	0.56	682	2.90	1.62	0.56	703	2.81	1.57	0.56	738
30	26	3.17	1.40	0.44	682	3.08	1.36	0.44	717	3.04	1.34	0.44	738	2.94	1.30	0.44	760
31	18	2.70	2.59	0.96	568	2.59	2.48	0.96	596	2.48	2.38	0.96	625	2.39	2.30	0.96	653
31	20	2.82	2.37	0.84	596	2.70	2.27	0.84	632	2.62	2.20	0.84	646	2.53	2.13	0.84	675
31	22	2.93	2.11	0.72	618	2.83	2.04	0.72	657	2.76	1.99	0.72	675	2.65	1.90	0.72	703
31	24	3.08	1.85	0.60	646	2.97	1.78	0.60	682	2.90	1.74	0.60	703	2.81	1.68	0.60	738
31	26	3.17	1.52	0.48	682	3.08	1.48	0.48	717	3.04	1.46	0.48	738	2.94	1.41	0.48	760
32	18	2.70	2.70	1.00	568	2.59	2.59	1.00	596	2.48	2.48	1.00	625	2.39	2.39	1.00	653
32	20	2.82	2.48	0.88	596	2.70	2.38	0.88	632	2.62	2.31	0.88	646	2.53	2.23	0.88	675
32	22	2.93	2.23	0.76	618	2.83	2.15	0.76	657	2.76	2.10	0.76	675	2.65	2.01	0.76	703
32	24	3.08	1.97	0.64	646	2.97	1.90	0.64	682	2.90	1.85	0.64	703	2.81	1.80	0.64	738
32	26	3.17	1.65	0.52	682	3.08	1.60	0.52	717	3.04	1.58	0.52	738	2.94	1.53	0.52	760

NOTE Q :Total capacity (kW) SHF :Sensible heat factor DB :Dry-bulb temperature
SHC :Sensible heat capacity (kW) INPUT :Total power input (W) WB :Wet-bulb temperature

PERFORMANCE DATA
COOL operation (230V)

MSC-A07WV -E1 : MU-A07WV -E1

CAPACITY : 2.3(kW) SHF : 0.74 INPUT : 710(W)

		OUTDOOR DB(℃)											
INDOOR DB(℃)	INDOOR WB(℃)	35				40				43			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	2.25	1.26	0.56	696	2.07	1.16	0.56	738	1.99	1.11	0.56	753
21	20	2.37	1.04	0.44	724	2.21	0.97	0.44	760	2.13	0.94	0.44	781
22	18	2.25	1.35	0.60	696	2.07	1.24	0.60	738	1.99	1.19	0.60	753
22	20	2.37	1.14	0.48	724	2.21	1.06	0.48	760	2.13	1.02	0.48	781
22	22	2.51	0.90	0.36	753	2.35	0.84	0.36	795	2.27	0.82	0.36	809
23	18	2.25	1.44	0.64	696	2.07	1.32	0.64	738	1.99	1.27	0.64	753
23	20	2.37	1.23	0.52	724	2.21	1.15	0.52	760	2.13	1.11	0.52	781
23	22	2.51	1.00	0.40	753	2.35	0.94	0.40	795	2.27	0.91	0.40	809
24	18	2.25	1.53	0.68	696	2.07	1.41	0.68	738	1.99	1.35	0.68	753
24	20	2.37	1.33	0.56	724	2.21	1.24	0.56	760	2.13	1.19	0.56	781
24	22	2.51	1.10	0.44	753	2.35	1.03	0.44	795	2.27	1.00	0.44	809
24	24	2.65	0.85	0.32	781	2.48	0.79	0.32	817	2.42	0.77	0.32	834
25	18	2.25	1.62	0.72	696	2.07	1.49	0.72	738	1.99	1.43	0.72	753
25	20	2.37	1.42	0.60	724	2.21	1.32	0.60	760	2.13	1.28	0.60	781
25	22	2.51	1.20	0.48	753	2.35	1.13	0.48	795	2.27	1.09	0.48	809
25	24	2.65	0.95	0.36	781	2.48	0.89	0.36	817	2.42	0.87	0.36	834
26	18	2.25	1.71	0.76	696	2.07	1.57	0.76	738	1.99	1.51	0.76	753
26	20	2.37	1.52	0.64	724	2.21	1.41	0.64	760	2.13	1.36	0.64	781
26	22	2.51	1.30	0.52	753	2.35	1.22	0.52	795	2.27	1.18	0.52	809
26	24	2.65	1.06	0.40	781	2.48	0.99	0.40	817	2.42	0.97	0.40	834
26	26	2.78	0.78	0.28	809	2.62	0.73	0.28	845	2.54	0.71	0.28	863
27	18	2.25	1.80	0.80	696	2.07	1.66	0.80	738	1.99	1.59	0.80	753
27	20	2.37	1.61	0.68	724	2.21	1.50	0.68	760	2.13	1.45	0.68	781
27	22	2.51	1.40	0.56	753	2.35	1.31	0.56	795	2.27	1.27	0.56	809
27	24	2.65	1.16	0.44	781	2.48	1.09	0.44	817	2.42	1.06	0.44	834
27	26	2.78	0.89	0.32	809	2.62	0.84	0.32	845	2.54	0.81	0.32	863
28	18	2.25	1.89	0.84	696	2.07	1.74	0.84	738	1.99	1.67	0.84	753
28	20	2.37	1.71	0.72	724	2.21	1.59	0.72	760	2.13	1.53	0.72	781
28	22	2.51	1.50	0.60	753	2.35	1.41	0.60	795	2.27	1.36	0.60	809
28	24	2.65	1.27	0.48	781	2.48	1.19	0.48	817	2.42	1.16	0.48	834
28	26	2.78	1.00	0.36	809	2.62	0.94	0.36	845	2.54	0.91	0.36	863
29	18	2.25	1.98	0.88	696	2.07	1.82	0.88	738	1.99	1.75	0.88	753
29	20	2.37	1.80	0.76	724	2.21	1.68	0.76	760	2.13	1.62	0.76	781
29	22	2.51	1.60	0.64	753	2.35	1.50	0.64	795	2.27	1.45	0.64	809
29	24	2.65	1.38	0.52	781	2.48	1.29	0.52	817	2.42	1.26	0.52	834
29	26	2.78	1.11	0.40	809	2.62	1.05	0.40	845	2.54	1.02	0.40	863
30	18	2.25	2.07	0.92	696	2.07	1.90	0.92	738	1.99	1.83	0.92	753
30	20	2.37	1.90	0.80	724	2.21	1.77	0.80	760	2.13	1.70	0.80	781
30	22	2.51	1.70	0.68	753	2.35	1.60	0.68	795	2.27	1.54	0.68	809
30	24	2.65	1.48	0.56	781	2.48	1.39	0.56	817	2.42	1.35	0.56	834
30	26	2.78	1.22	0.44	809	2.62	1.15	0.44	845	2.54	1.12	0.44	863
31	18	2.25	2.16	0.96	696	2.07	1.99	0.96	738	1.99	1.91	0.96	753
31	20	2.37	1.99	0.84	724	2.21	1.85	0.84	760	2.13	1.79	0.84	781
31	22	2.51	1.81	0.72	753	2.35	1.69	0.72	795	2.27	1.63	0.72	809
31	24	2.65	1.59	0.60	781	2.48	1.49	0.60	817	2.42	1.45	0.60	834
31	26	2.78	1.34	0.48	809	2.62	1.26	0.48	845	2.54	1.22	0.48	863
32	18	2.25	2.25	1.00	696	2.07	2.07	1.00	738	1.99	1.99	1.00	753
32	20	2.37	2.08	0.88	724	2.21	1.94	0.88	760	2.13	1.87	0.88	781
32	22	2.51	1.91	0.76	753	2.35	1.78	0.76	795	2.27	1.72	0.76	809
32	24	2.65	1.69	0.64	781	2.48	1.59	0.64	817	2.42	1.55	0.64	834
32	26	2.78	1.45	0.52	809	2.62	1.36	0.52	845	2.54	1.32	0.52	863

NOTE Q :Total capacity (kW) SHF :Sensible heat factor DB :Dry-bulb temperature
SHC :Sensible heat capacity (kW) INPUT :Total power input (W) WB :Wet-bulb temperature

PERFORMANCE DATA
COOL operation (230V)

MSC-A09WV -E1 : MU-A09WV -E1

CAPACITY : 2.55(kW) SHF : 0.70 INPUT : 780(W)

		OUTDOOR DB(℃)															
INDOOR DB(℃)	INDOOR WB(℃)	21				25				27				30			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	3.00	1.56	0.52	624	2.87	1.49	0.52	655	2.75	1.43	0.52	686	2.65	1.38	0.52	718
21	20	3.12	1.25	0.40	655	3.00	1.20	0.40	694	2.91	1.16	0.40	710	2.81	1.12	0.40	741
22	18	3.00	1.68	0.56	624	2.87	1.61	0.56	655	2.75	1.54	0.56	686	2.65	1.49	0.56	718
22	20	3.12	1.37	0.44	655	3.00	1.32	0.44	694	2.91	1.28	0.44	710	2.81	1.23	0.44	741
22	22	3.25	1.04	0.32	679	3.14	1.00	0.32	722	3.06	0.98	0.32	741	2.93	0.94	0.32	772
23	18	3.00	1.80	0.60	624	2.87	1.72	0.60	655	2.75	1.65	0.60	686	2.65	1.59	0.60	718
23	20	3.12	1.50	0.48	655	3.00	1.44	0.48	694	2.91	1.40	0.48	710	2.81	1.35	0.48	741
23	22	3.25	1.17	0.36	679	3.14	1.13	0.36	722	3.06	1.10	0.36	741	2.93	1.06	0.36	772
24	18	3.00	1.92	0.64	624	2.87	1.84	0.64	655	2.75	1.76	0.64	686	2.65	1.70	0.64	718
24	20	3.12	1.62	0.52	655	3.00	1.56	0.52	694	2.91	1.51	0.52	710	2.81	1.46	0.52	741
24	22	3.25	1.30	0.40	679	3.14	1.25	0.40	722	3.06	1.22	0.40	741	2.93	1.17	0.40	772
24	24	3.42	0.96	0.28	710	3.29	0.92	0.28	749	3.21	0.90	0.28	772	3.11	0.87	0.28	811
25	18	3.00	2.04	0.68	624	2.87	1.95	0.68	655	2.75	1.87	0.68	686	2.65	1.80	0.68	718
25	20	3.12	1.75	0.56	655	3.00	1.68	0.56	694	2.91	1.63	0.56	710	2.81	1.57	0.56	741
25	22	3.25	1.43	0.44	679	3.14	1.38	0.44	722	3.06	1.35	0.44	741	2.93	1.29	0.44	772
25	24	3.42	1.09	0.32	710	3.29	1.05	0.32	749	3.21	1.03	0.32	772	3.11	1.00	0.32	811
26	18	3.00	2.16	0.72	624	2.87	2.07	0.72	655	2.75	1.98	0.72	686	2.65	1.91	0.72	718
26	20	3.12	1.87	0.60	655	3.00	1.80	0.60	694	2.91	1.74	0.60	710	2.81	1.68	0.60	741
26	22	3.25	1.56	0.48	679	3.14	1.51	0.48	722	3.06	1.47	0.48	741	2.93	1.41	0.48	772
26	24	3.42	1.23	0.36	710	3.29	1.18	0.36	749	3.21	1.16	0.36	772	3.11	1.12	0.36	811
26	26	3.52	0.84	0.24	749	3.42	0.82	0.24	788	3.37	0.81	0.24	811	3.26	0.78	0.24	835
27	18	3.00	2.28	0.76	624	2.87	2.18	0.76	655	2.75	2.09	0.76	686	2.65	2.02	0.76	718
27	20	3.12	2.00	0.64	655	3.00	1.92	0.64	694	2.91	1.86	0.64	710	2.81	1.80	0.64	741
27	22	3.25	1.69	0.52	679	3.14	1.63	0.52	722	3.06	1.59	0.52	741	2.93	1.52	0.52	772
27	24	3.42	1.37	0.40	710	3.29	1.32	0.40	749	3.21	1.29	0.40	772	3.11	1.24	0.40	811
27	26	3.52	0.99	0.28	749	3.42	0.96	0.28	788	3.37	0.94	0.28	811	3.26	0.91	0.28	835
28	18	3.00	2.40	0.80	624	2.87	2.30	0.80	655	2.75	2.20	0.80	686	2.65	2.12	0.80	718
28	20	3.12	2.12	0.68	655	3.00	2.04	0.68	694	2.91	1.98	0.68	710	2.81	1.91	0.68	741
28	22	3.25	1.82	0.56	679	3.14	1.76	0.56	722	3.06	1.71	0.56	741	2.93	1.64	0.56	772
28	24	3.42	1.50	0.44	710	3.29	1.45	0.44	749	3.21	1.41	0.44	772	3.11	1.37	0.44	811
28	26	3.52	1.13	0.32	749	3.42	1.09	0.32	788	3.37	1.08	0.32	811	3.26	1.04	0.32	835
29	18	3.00	2.52	0.84	624	2.87	2.41	0.84	655	2.75	2.31	0.84	686	2.65	2.23	0.84	718
29	20	3.12	2.25	0.72	655	3.00	2.16	0.72	694	2.91	2.09	0.72	710	2.81	2.02	0.72	741
29	22	3.25	1.95	0.60	679	3.14	1.88	0.60	722	3.06	1.84	0.60	741	2.93	1.76	0.60	772
29	24	3.42	1.64	0.48	710	3.29	1.58	0.48	749	3.21	1.54	0.48	772	3.11	1.49	0.48	811
29	26	3.52	1.27	0.36	749	3.42	1.23	0.36	788	3.37	1.21	0.36	811	3.26	1.18	0.36	835
30	18	3.00	2.64	0.88	624	2.87	2.52	0.88	655	2.75	2.42	0.88	686	2.65	2.33	0.88	718
30	20	3.12	2.37	0.76	655	3.00	2.28	0.76	694	2.91	2.21	0.76	710	2.81	2.13	0.76	741
30	22	3.25	2.08	0.64	679	3.14	2.01	0.64	722	3.06	1.96	0.64	741	2.93	1.88	0.64	772
30	24	3.42	1.78	0.52	710	3.29	1.71	0.52	749	3.21	1.67	0.52	772	3.11	1.62	0.52	811
30	26	3.52	1.41	0.40	749	3.42	1.37	0.40	788	3.37	1.35	0.40	811	3.26	1.31	0.40	835
31	18	3.00	2.76	0.92	624	2.87	2.64	0.92	655	2.75	2.53	0.92	686	2.65	2.44	0.92	718
31	20	3.12	2.50	0.80	655	3.00	2.40	0.80	694	2.91	2.33	0.80	710	2.81	2.24	0.80	741
31	22	3.25	2.21	0.68	679	3.14	2.13	0.68	722	3.06	2.08	0.68	741	2.93	1.99	0.68	772
31	24	3.42	1.91	0.56	710	3.29	1.84	0.56	749	3.21	1.80	0.56	772	3.11	1.74	0.56	811
31	26	3.52	1.55	0.44	749	3.42	1.50	0.44	788	3.37	1.48	0.44	811	3.26	1.44	0.44	835
32	18	3.00	2.88	0.96	624	2.87	2.75	0.96	655	2.75	2.64	0.96	686	2.65	2.55	0.96	718
32	20	3.12	2.62	0.84	655	3.00	2.52	0.84	694	2.91	2.44	0.84	710	2.81	2.36	0.84	741
32	22	3.25	2.34	0.72	679	3.14	2.26	0.72	722	3.06	2.20	0.72	741	2.93	2.11	0.72	772
32	24	3.42	2.05	0.60	710	3.29	1.97	0.60	749	3.21	1.93	0.60	772	3.11	1.87	0.60	811
32	26	3.52	1.69	0.48	749	3.42	1.64	0.48	788	3.37	1.62	0.48	811	3.26	1.57	0.48	835

NOTE Q :Total capacity (kW) SHF :Sensible heat factor DB :Dry-bulb temperature
SHC :Sensible heat capacity (kW) INPUT :Total power input (W) WB :Wet-bulb temperature

PERFORMANCE DATA
COOL operation (230V)

MSC-A09WV -E1 : MU-A09WV -E1

CAPACITY : 2.55(kW) SHF : 0.70 INPUT : 780(W)

		OUTDOOR DB(℃)											
INDOOR DB(℃)	INDOOR WB(℃)	35				40				43			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	2.50	1.30	0.52	764	2.30	1.19	0.52	811	2.21	1.15	0.52	827
21	20	2.63	1.05	0.40	796	2.45	0.98	0.40	835	2.36	0.94	0.40	858
22	18	2.50	1.40	0.56	764	2.30	1.29	0.56	811	2.21	1.24	0.56	827
22	20	2.63	1.16	0.44	796	2.45	1.08	0.44	835	2.36	1.04	0.44	858
22	22	2.78	0.89	0.32	827	2.60	0.83	0.32	874	2.51	0.80	0.32	889
23	18	2.50	1.50	0.60	764	2.30	1.38	0.60	811	2.21	1.32	0.60	827
23	20	2.63	1.26	0.48	796	2.45	1.18	0.48	835	2.36	1.13	0.48	858
23	22	2.78	1.00	0.36	827	2.60	0.94	0.36	874	2.51	0.90	0.36	889
24	18	2.50	1.60	0.64	764	2.30	1.47	0.64	811	2.21	1.41	0.64	827
24	20	2.63	1.37	0.52	796	2.45	1.27	0.52	835	2.36	1.23	0.52	858
24	22	2.78	1.11	0.40	827	2.60	1.04	0.40	874	2.51	1.00	0.40	889
24	24	2.93	0.82	0.28	858	2.75	0.77	0.28	897	2.68	0.75	0.28	917
25	18	2.50	1.70	0.68	764	2.30	1.56	0.68	811	2.21	1.50	0.68	827
25	20	2.63	1.47	0.56	796	2.45	1.37	0.56	835	2.36	1.32	0.56	858
25	22	2.78	1.22	0.44	827	2.60	1.14	0.44	874	2.51	1.11	0.44	889
25	24	2.93	0.94	0.32	858	2.75	0.88	0.32	897	2.68	0.86	0.32	917
26	18	2.50	1.80	0.72	764	2.30	1.65	0.72	811	2.21	1.59	0.72	827
26	20	2.63	1.58	0.60	796	2.45	1.47	0.60	835	2.36	1.42	0.60	858
26	22	2.78	1.33	0.48	827	2.60	1.25	0.48	874	2.51	1.21	0.48	889
26	24	2.93	1.06	0.36	858	2.75	0.99	0.36	897	2.68	0.96	0.36	917
26	26	3.09	0.74	0.24	889	2.91	0.70	0.24	928	2.82	0.68	0.24	948
27	18	2.50	1.90	0.76	764	2.30	1.74	0.76	811	2.21	1.68	0.76	827
27	20	2.63	1.68	0.64	796	2.45	1.57	0.64	835	2.36	1.51	0.64	858
27	22	2.78	1.45	0.52	827	2.60	1.35	0.52	874	2.51	1.31	0.52	889
27	24	2.93	1.17	0.40	858	2.75	1.10	0.40	897	2.68	1.07	0.40	917
27	26	3.09	0.86	0.28	889	2.91	0.81	0.28	928	2.82	0.79	0.28	948
28	18	2.50	2.00	0.80	764	2.30	1.84	0.80	811	2.21	1.76	0.80	827
28	20	2.63	1.79	0.68	796	2.45	1.66	0.68	835	2.36	1.60	0.68	858
28	22	2.78	1.56	0.56	827	2.60	1.46	0.56	874	2.51	1.41	0.56	889
28	24	2.93	1.29	0.44	858	2.75	1.21	0.44	897	2.68	1.18	0.44	917
28	26	3.09	0.99	0.32	889	2.91	0.93	0.32	928	2.82	0.90	0.32	948
29	18	2.50	2.10	0.84	764	2.30	1.93	0.84	811	2.21	1.85	0.84	827
29	20	2.63	1.89	0.72	796	2.45	1.76	0.72	835	2.36	1.70	0.72	858
29	22	2.78	1.67	0.60	827	2.60	1.56	0.60	874	2.51	1.51	0.60	889
29	24	2.93	1.41	0.48	858	2.75	1.32	0.48	897	2.68	1.29	0.48	917
29	26	3.09	1.11	0.36	889	2.91	1.05	0.36	928	2.82	1.01	0.36	948
30	18	2.50	2.20	0.88	764	2.30	2.02	0.88	811	2.21	1.94	0.88	827
30	20	2.63	2.00	0.76	796	2.45	1.86	0.76	835	2.36	1.79	0.76	858
30	22	2.78	1.78	0.64	827	2.60	1.66	0.64	874	2.51	1.61	0.64	889
30	24	2.93	1.52	0.52	858	2.75	1.43	0.52	897	2.68	1.39	0.52	917
30	26	3.09	1.23	0.40	889	2.91	1.16	0.40	928	2.82	1.13	0.40	948
31	18	2.50	2.30	0.92	764	2.30	2.11	0.92	811	2.21	2.03	0.92	827
31	20	2.63	2.10	0.80	796	2.45	1.96	0.80	835	2.36	1.89	0.80	858
31	22	2.78	1.89	0.68	827	2.60	1.77	0.68	874	2.51	1.71	0.68	889
31	24	2.93	1.64	0.56	858	2.75	1.54	0.56	897	2.68	1.50	0.56	917
31	26	3.09	1.36	0.44	889	2.91	1.28	0.44	928	2.82	1.24	0.44	948
32	18	2.50	2.40	0.96	764	2.30	2.20	0.96	811	2.21	2.12	0.96	827
32	20	2.63	2.21	0.84	796	2.45	2.06	0.84	835	2.36	1.98	0.84	858
32	22	2.78	2.00	0.72	827	2.60	1.87	0.72	874	2.51	1.81	0.72	889
32	24	2.93	1.76	0.60	858	2.75	1.65	0.60	897	2.68	1.61	0.60	917
32	26	3.09	1.48	0.48	889	2.91	1.40	0.48	928	2.82	1.35	0.48	948

NOTE Q :Total capacity (kW) SHF :Sensible heat factor DB :Dry-bulb temperature
SHC :Sensible heat capacity (kW) INPUT :Total power input (W) WB :Wet-bulb temperature

PERFORMANCE DATA
COOL operation (230V)

MSC-A12WV -E1 : MU-A12WV -E1

CAPACITY : 3.45(kW) SHF : 0.67 INPUT : 1140(W)

		OUTDOOR DB(℃)															
INDOOR DB(℃)	INDOOR WB(℃)	21				25				27				30			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	4.05	1.99	0.49	912	3.88	1.90	0.49	958	3.73	1.83	0.49	1003	3.59	1.76	0.49	1049
21	20	4.23	1.56	0.37	958	4.05	1.50	0.37	1015	3.93	1.46	0.37	1037	3.80	1.40	0.37	1083
22	18	4.05	2.15	0.53	912	3.88	2.06	0.53	958	3.73	1.97	0.53	1003	3.59	1.90	0.53	1049
22	20	4.23	1.73	0.41	958	4.05	1.66	0.41	1015	3.93	1.61	0.41	1037	3.80	1.56	0.41	1083
22	22	4.40	1.28	0.29	992	4.24	1.23	0.29	1055	4.14	1.20	0.29	1083	3.97	1.15	0.29	1129
23	18	4.05	2.31	0.57	912	3.88	2.21	0.57	958	3.73	2.12	0.57	1003	3.59	2.05	0.57	1049
23	20	4.23	1.90	0.45	958	4.05	1.82	0.45	1015	3.93	1.77	0.45	1037	3.80	1.71	0.45	1083
23	22	4.40	1.45	0.33	992	4.24	1.40	0.33	1055	4.14	1.37	0.33	1083	3.97	1.31	0.33	1129
24	18	4.05	2.47	0.61	912	3.88	2.37	0.61	958	3.73	2.27	0.61	1003	3.59	2.19	0.61	1049
24	20	4.23	2.07	0.49	958	4.05	1.99	0.49	1015	3.93	1.93	0.49	1037	3.80	1.86	0.49	1083
24	22	4.40	1.63	0.37	992	4.24	1.57	0.37	1055	4.14	1.53	0.37	1083	3.97	1.47	0.37	1129
24	24	4.62	1.16	0.25	1037	4.45	1.11	0.25	1094	4.35	1.09	0.25	1129	4.21	1.05	0.25	1186
25	18	4.05	2.63	0.65	912	3.88	2.52	0.65	958	3.73	2.42	0.65	1003	3.59	2.33	0.65	1049
25	20	4.23	2.24	0.53	958	4.05	2.15	0.53	1015	3.93	2.08	0.53	1037	3.80	2.01	0.53	1083
25	22	4.40	1.80	0.41	992	4.24	1.74	0.41	1055	4.14	1.70	0.41	1083	3.97	1.63	0.41	1129
25	24	4.62	1.34	0.29	1037	4.45	1.29	0.29	1094	4.35	1.26	0.29	1129	4.21	1.22	0.29	1186
26	18	4.05	2.80	0.69	912	3.88	2.68	0.69	958	3.73	2.57	0.69	1003	3.59	2.48	0.69	1049
26	20	4.23	2.41	0.57	958	4.05	2.31	0.57	1015	3.93	2.24	0.57	1037	3.80	2.16	0.57	1083
26	22	4.40	1.98	0.45	992	4.24	1.91	0.45	1055	4.14	1.86	0.45	1083	3.97	1.79	0.45	1129
26	24	4.62	1.53	0.33	1037	4.45	1.47	0.33	1094	4.35	1.43	0.33	1129	4.21	1.39	0.33	1186
26	26	4.76	1.00	0.21	1094	4.62	0.97	0.21	1151	4.55	0.96	0.21	1186	4.42	0.93	0.21	1220
27	18	4.05	2.96	0.73	912	3.88	2.83	0.73	958	3.73	2.72	0.73	1003	3.59	2.62	0.73	1049
27	20	4.23	2.58	0.61	958	4.05	2.47	0.61	1015	3.93	2.40	0.61	1037	3.80	2.31	0.61	1083
27	22	4.40	2.16	0.49	992	4.24	2.08	0.49	1055	4.14	2.03	0.49	1083	3.97	1.94	0.49	1129
27	24	4.62	1.71	0.37	1037	4.45	1.65	0.37	1094	4.35	1.61	0.37	1129	4.21	1.56	0.37	1186
27	26	4.76	1.19	0.25	1094	4.62	1.16	0.25	1151	4.55	1.14	0.25	1186	4.42	1.10	0.25	1220
28	18	4.05	3.12	0.77	912	3.88	2.99	0.77	958	3.73	2.87	0.77	1003	3.59	2.76	0.77	1049
28	20	4.23	2.75	0.65	958	4.05	2.63	0.65	1015	3.93	2.56	0.65	1037	3.80	2.47	0.65	1083
28	22	4.40	2.33	0.53	992	4.24	2.25	0.53	1055	4.14	2.19	0.53	1083	3.97	2.10	0.53	1129
28	24	4.62	1.90	0.41	1037	4.45	1.82	0.41	1094	4.35	1.78	0.41	1129	4.21	1.73	0.41	1186
28	26	4.76	1.38	0.29	1094	4.62	1.34	0.29	1151	4.55	1.32	0.29	1186	4.42	1.28	0.29	1220
29	18	4.05	3.28	0.81	912	3.88	3.14	0.81	958	3.73	3.02	0.81	1003	3.59	2.91	0.81	1049
29	20	4.23	2.92	0.69	958	4.05	2.80	0.69	1015	3.93	2.71	0.69	1037	3.80	2.62	0.69	1083
29	22	4.40	2.51	0.57	992	4.24	2.42	0.57	1055	4.14	2.36	0.57	1083	3.97	2.26	0.57	1129
29	24	4.62	2.08	0.45	1037	4.45	2.00	0.45	1094	4.35	1.96	0.45	1129	4.21	1.89	0.45	1186
29	26	4.76	1.57	0.33	1094	4.62	1.53	0.33	1151	4.55	1.50	0.33	1186	4.42	1.46	0.33	1220
30	18	4.05	3.45	0.85	912	3.88	3.30	0.85	958	3.73	3.17	0.85	1003	3.59	3.05	0.85	1049
30	20	4.23	3.09	0.73	958	4.05	2.96	0.73	1015	3.93	2.87	0.73	1037	3.80	2.77	0.73	1083
30	22	4.40	2.68	0.61	992	4.24	2.59	0.61	1055	4.14	2.53	0.61	1083	3.97	2.42	0.61	1129
30	24	4.62	2.27	0.49	1037	4.45	2.18	0.49	1094	4.35	2.13	0.49	1129	4.21	2.06	0.49	1186
30	26	4.76	1.76	0.37	1094	4.62	1.71	0.37	1151	4.55	1.68	0.37	1186	4.42	1.63	0.37	1220
31	18	4.05	3.61	0.89	912	3.88	3.45	0.89	958	3.73	3.32	0.89	1003	3.59	3.19	0.89	1049
31	20	4.23	3.25	0.77	958	4.05	3.12	0.77	1015	3.93	3.03	0.77	1037	3.80	2.92	0.77	1083
31	22	4.40	2.86	0.65	992	4.24	2.76	0.65	1055	4.14	2.69	0.65	1083	3.97	2.58	0.65	1129
31	24	4.62	2.45	0.53	1037	4.45	2.36	0.53	1094	4.35	2.30	0.53	1129	4.21	2.23	0.53	1186
31	26	4.76	1.95	0.41	1094	4.62	1.90	0.41	1151	4.55	1.87	0.41	1186	4.42	1.81	0.41	1220
32	18	4.05	3.77	0.93	912	3.88	3.61	0.93	958	3.73	3.47	0.93	1003	3.59	3.34	0.93	1049
32	20	4.23	3.42	0.81	958	4.05	3.28	0.81	1015	3.93	3.19	0.81	1037	3.80	3.07	0.81	1083
32	22	4.40	3.04	0.69	992	4.24	2.93	0.69	1055	4.14	2.86	0.69	1083	3.97	2.74	0.69	1129
32	24	4.62	2.64	0.57	1037	4.45	2.54	0.57	1094	4.35	2.48	0.57	1129	4.21	2.40	0.57	1186
32	26	4.76	2.14	0.45	1094	4.62	2.08	0.45	1151	4.55	2.05	0.45	1186	4.42	1.99	0.45	1220

NOTE Q :Total capacity (kW) SHF :Sensible heat factor DB :Dry-bulb temperature
SHC :Sensible heat capacity (kW) INPUT :Total power input (W) WB :Wet-bulb temperature

PERFORMANCE DATA
COOL operation (230V)

MSC-A12WV -E1 : MU-A12WV -E1

CAPACITY : 3.45(kW) SHF : 0.67 INPUT : 1140(W)

		OUTDOOR DB(℃)											
INDOOR DB(℃)	INDOOR WB(℃)	35				40				43			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	3.38	1.66	0.49	1117	3.11	1.52	0.49	1186	2.98	1.46	0.49	1208
21	20	3.55	1.31	0.37	1163	3.31	1.23	0.37	1220	3.19	1.18	0.37	1254
22	18	3.38	1.79	0.53	1117	3.11	1.65	0.53	1186	2.98	1.58	0.53	1208
22	20	3.55	1.46	0.41	1163	3.31	1.36	0.41	1220	3.19	1.31	0.41	1254
22	22	3.76	1.09	0.29	1208	3.52	1.02	0.29	1277	3.40	0.99	0.29	1300
23	18	3.38	1.93	0.57	1117	3.11	1.77	0.57	1186	2.98	1.70	0.57	1208
23	20	3.55	1.60	0.45	1163	3.31	1.49	0.45	1220	3.19	1.44	0.45	1254
23	22	3.76	1.24	0.33	1208	3.52	1.16	0.33	1277	3.40	1.12	0.33	1300
24	18	3.38	2.06	0.61	1117	3.11	1.89	0.61	1186	2.98	1.82	0.61	1208
24	20	3.55	1.74	0.49	1163	3.31	1.62	0.49	1220	3.19	1.56	0.49	1254
24	22	3.76	1.39	0.37	1208	3.52	1.30	0.37	1277	3.40	1.26	0.37	1300
24	24	3.97	0.99	0.25	1254	3.73	0.93	0.25	1311	3.62	0.91	0.25	1340
25	18	3.38	2.20	0.65	1117	3.11	2.02	0.65	1186	2.98	1.94	0.65	1208
25	20	3.55	1.88	0.53	1163	3.31	1.76	0.53	1220	3.19	1.69	0.53	1254
25	22	3.76	1.54	0.41	1208	3.52	1.44	0.41	1277	3.40	1.39	0.41	1300
25	24	3.97	1.15	0.29	1254	3.73	1.08	0.29	1311	3.62	1.05	0.29	1340
26	18	3.38	2.33	0.69	1117	3.11	2.14	0.69	1186	2.98	2.06	0.69	1208
26	20	3.55	2.03	0.57	1163	3.31	1.89	0.57	1220	3.19	1.82	0.57	1254
26	22	3.76	1.69	0.45	1208	3.52	1.58	0.45	1277	3.40	1.53	0.45	1300
26	24	3.97	1.31	0.33	1254	3.73	1.23	0.33	1311	3.62	1.20	0.33	1340
26	26	4.17	0.88	0.21	1300	3.93	0.83	0.21	1357	3.81	0.80	0.21	1385
27	18	3.38	2.47	0.73	1117	3.11	2.27	0.73	1186	2.98	2.18	0.73	1208
27	20	3.55	2.17	0.61	1163	3.31	2.02	0.61	1220	3.19	1.95	0.61	1254
27	22	3.76	1.84	0.49	1208	3.52	1.72	0.49	1277	3.40	1.67	0.49	1300
27	24	3.97	1.47	0.37	1254	3.73	1.38	0.37	1311	3.62	1.34	0.37	1340
27	26	4.17	1.04	0.25	1300	3.93	0.98	0.25	1357	3.81	0.95	0.25	1385
28	18	3.38	2.60	0.77	1117	3.11	2.39	0.77	1186	2.98	2.30	0.77	1208
28	20	3.55	2.31	0.65	1163	3.31	2.15	0.65	1220	3.19	2.07	0.65	1254
28	22	3.76	1.99	0.53	1208	3.52	1.87	0.53	1277	3.40	1.80	0.53	1300
28	24	3.97	1.63	0.41	1254	3.73	1.53	0.41	1311	3.62	1.49	0.41	1340
28	26	4.17	1.21	0.29	1300	3.93	1.14	0.29	1357	3.81	1.11	0.29	1385
29	18	3.38	2.74	0.81	1117	3.11	2.52	0.81	1186	2.98	2.42	0.81	1208
29	20	3.55	2.45	0.69	1163	3.31	2.29	0.69	1220	3.19	2.20	0.69	1254
29	22	3.76	2.14	0.57	1208	3.52	2.01	0.57	1277	3.40	1.94	0.57	1300
29	24	3.97	1.79	0.45	1254	3.73	1.68	0.45	1311	3.62	1.63	0.45	1340
29	26	4.17	1.38	0.33	1300	3.93	1.30	0.33	1357	3.81	1.26	0.33	1385
30	18	3.38	2.87	0.85	1117	3.11	2.64	0.85	1186	2.98	2.54	0.85	1208
30	20	3.55	2.59	0.73	1163	3.31	2.42	0.73	1220	3.19	2.33	0.73	1254
30	22	3.76	2.29	0.61	1208	3.52	2.15	0.61	1277	3.40	2.07	0.61	1300
30	24	3.97	1.94	0.49	1254	3.73	1.83	0.49	1311	3.62	1.78	0.49	1340
30	26	4.17	1.54	0.37	1300	3.93	1.46	0.37	1357	3.81	1.41	0.37	1385
31	18	3.38	3.01	0.89	1117	3.11	2.76	0.89	1186	2.98	2.66	0.89	1208
31	20	3.55	2.74	0.77	1163	3.31	2.55	0.77	1220	3.19	2.46	0.77	1254
31	22	3.76	2.44	0.65	1208	3.52	2.29	0.65	1277	3.40	2.21	0.65	1300
31	24	3.97	2.10	0.53	1254	3.73	1.97	0.53	1311	3.62	1.92	0.53	1340
31	26	4.17	1.71	0.41	1300	3.93	1.61	0.41	1357	3.81	1.56	0.41	1385
32	18	3.38	3.14	0.93	1117	3.11	2.89	0.93	1186	2.98	2.78	0.93	1208
32	20	3.55	2.88	0.81	1163	3.31	2.68	0.81	1220	3.19	2.58	0.81	1254
32	22	3.76	2.59	0.69	1208	3.52	2.43	0.69	1277	3.40	2.34	0.69	1300
32	24	3.97	2.26	0.57	1254	3.73	2.12	0.57	1311	3.62	2.06	0.57	1340
32	26	4.17	1.88	0.45	1300	3.93	1.77	0.45	1357	3.81	1.72	0.45	1385

NOTE Q :Total capacity (kW) SHF :Sensible heat factor DB :Dry-bulb temperature
SHC :Sensible heat capacity (kW) INPUT :Total power input (W) WB :Wet-bulb temperature

PERFORMANCE DATA
COOL operation (230V)

MSC-A07WV -E1 : MUH-A07WV -E1

CAPACITY : 2.3(kW) SHF : 0.74 INPUT : 710(W)

		OUTDOOR DB(℃)															
INDOOR DB(℃)	INDOOR WB(℃)	21				25				27				30			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	2.70	1.51	0.56	568	2.59	1.45	0.56	596	2.48	1.39	0.56	625	2.39	1.34	0.56	653
21	20	2.82	1.24	0.44	596	2.70	1.19	0.44	632	2.62	1.15	0.44	646	2.53	1.11	0.44	675
22	18	2.70	1.62	0.60	568	2.59	1.55	0.60	596	2.48	1.49	0.60	625	2.39	1.44	0.60	653
22	20	2.82	1.35	0.48	596	2.70	1.30	0.48	632	2.62	1.26	0.48	646	2.53	1.21	0.48	675
22	22	2.93	1.06	0.36	618	2.83	1.02	0.36	657	2.76	0.99	0.36	675	2.65	0.95	0.36	703
23	18	2.70	1.73	0.64	568	2.59	1.66	0.64	596	2.48	1.59	0.64	625	2.39	1.53	0.64	653
23	20	2.82	1.47	0.52	596	2.70	1.41	0.52	632	2.62	1.36	0.52	646	2.53	1.32	0.52	675
23	22	2.93	1.17	0.40	618	2.83	1.13	0.40	657	2.76	1.10	0.40	675	2.65	1.06	0.40	703
24	18	2.70	1.84	0.68	568	2.59	1.76	0.68	596	2.48	1.69	0.68	625	2.39	1.63	0.68	653
24	20	2.82	1.58	0.56	596	2.70	1.51	0.56	632	2.62	1.47	0.56	646	2.53	1.42	0.56	675
24	22	2.93	1.29	0.44	618	2.83	1.24	0.44	657	2.76	1.21	0.44	675	2.65	1.16	0.44	703
24	24	3.08	0.99	0.32	646	2.97	0.95	0.32	682	2.90	0.93	0.32	703	2.81	0.90	0.32	738
25	18	2.70	1.95	0.72	568	2.59	1.86	0.72	596	2.48	1.79	0.72	625	2.39	1.72	0.72	653
25	20	2.82	1.69	0.60	596	2.70	1.62	0.60	632	2.62	1.57	0.60	646	2.53	1.52	0.60	675
25	22	2.93	1.41	0.48	618	2.83	1.36	0.48	657	2.76	1.32	0.48	675	2.65	1.27	0.48	703
25	24	3.08	1.11	0.36	646	2.97	1.07	0.36	682	2.90	1.04	0.36	703	2.81	1.01	0.36	738
26	18	2.70	2.05	0.76	568	2.59	1.97	0.76	596	2.48	1.89	0.76	625	2.39	1.82	0.76	653
26	20	2.82	1.80	0.64	596	2.70	1.73	0.64	632	2.62	1.68	0.64	646	2.53	1.62	0.64	675
26	22	2.93	1.52	0.52	618	2.83	1.47	0.52	657	2.76	1.44	0.52	675	2.65	1.38	0.52	703
26	24	3.08	1.23	0.40	646	2.97	1.19	0.40	682	2.90	1.16	0.40	703	2.81	1.12	0.40	738
26	26	3.17	0.89	0.28	682	3.08	0.86	0.28	717	3.04	0.85	0.28	738	2.94	0.82	0.28	760
27	18	2.70	2.16	0.80	568	2.59	2.07	0.80	596	2.48	1.99	0.80	625	2.39	1.91	0.80	653
27	20	2.82	1.92	0.68	596	2.70	1.84	0.68	632	2.62	1.78	0.68	646	2.53	1.72	0.68	675
27	22	2.93	1.64	0.56	618	2.83	1.58	0.56	657	2.76	1.55	0.56	675	2.65	1.48	0.56	703
27	24	3.08	1.36	0.44	646	2.97	1.31	0.44	682	2.90	1.28	0.44	703	2.81	1.23	0.44	738
27	26	3.17	1.02	0.32	682	3.08	0.99	0.32	717	3.04	0.97	0.32	738	2.94	0.94	0.32	760
28	18	2.70	2.27	0.84	568	2.59	2.17	0.84	596	2.48	2.09	0.84	625	2.39	2.01	0.84	653
28	20	2.82	2.03	0.72	596	2.70	1.95	0.72	632	2.62	1.89	0.72	646	2.53	1.82	0.72	675
28	22	2.93	1.76	0.60	618	2.83	1.70	0.60	657	2.76	1.66	0.60	675	2.65	1.59	0.60	703
28	24	3.08	1.48	0.48	646	2.97	1.42	0.48	682	2.90	1.39	0.48	703	2.81	1.35	0.48	738
28	26	3.17	1.14	0.36	682	3.08	1.11	0.36	717	3.04	1.09	0.36	738	2.94	1.06	0.36	760
29	18	2.70	2.38	0.88	568	2.59	2.28	0.88	596	2.48	2.19	0.88	625	2.39	2.10	0.88	653
29	20	2.82	2.14	0.76	596	2.70	2.05	0.76	632	2.62	1.99	0.76	646	2.53	1.92	0.76	675
29	22	2.93	1.88	0.64	618	2.83	1.81	0.64	657	2.76	1.77	0.64	675	2.65	1.69	0.64	703
29	24	3.08	1.60	0.52	646	2.97	1.54	0.52	682	2.90	1.51	0.52	703	2.81	1.46	0.52	738
29	26	3.17	1.27	0.40	682	3.08	1.23	0.40	717	3.04	1.21	0.40	738	2.94	1.18	0.40	760
30	18	2.70	2.49	0.92	568	2.59	2.38	0.92	596	2.48	2.29	0.92	625	2.39	2.20	0.92	653
30	20	2.82	2.25	0.80	596	2.70	2.16	0.80	632	2.62	2.10	0.80	646	2.53	2.02	0.80	675
30	22	2.93	1.99	0.68	618	2.83	1.92	0.68	657	2.76	1.88	0.68	675	2.65	1.80	0.68	703
30	24	3.08	1.73	0.56	646	2.97	1.66	0.56	682	2.90	1.62	0.56	703	2.81	1.57	0.56	738
30	26	3.17	1.40	0.44	682	3.08	1.36	0.44	717	3.04	1.34	0.44	738	2.94	1.30	0.44	760
31	18	2.70	2.59	0.96	568	2.59	2.48	0.96	596	2.48	2.38	0.96	625	2.39	2.30	0.96	653
31	20	2.82	2.37	0.84	596	2.70	2.27	0.84	632	2.62	2.20	0.84	646	2.53	2.13	0.84	675
31	22	2.93	2.11	0.72	618	2.83	2.04	0.72	657	2.76	1.99	0.72	675	2.65	1.90	0.72	703
31	24	3.08	1.85	0.60	646	2.97	1.78	0.60	682	2.90	1.74	0.60	703	2.81	1.68	0.60	738
31	26	3.17	1.52	0.48	682	3.08	1.48	0.48	717	3.04	1.46	0.48	738	2.94	1.41	0.48	760
32	18	2.70	2.70	1.00	568	2.59	2.59	1.00	596	2.48	2.48	1.00	625	2.39	2.39	1.00	653
32	20	2.82	2.48	0.88	596	2.70	2.38	0.88	632	2.62	2.31	0.88	646	2.53	2.23	0.88	675
32	22	2.93	2.23	0.76	618	2.83	2.15	0.76	657	2.76	2.10	0.76	675	2.65	2.01	0.76	703
32	24	3.08	1.97	0.64	646	2.97	1.90	0.64	682	2.90	1.85	0.64	703	2.81	1.80	0.64	738
32	26	3.17	1.65	0.52	682	3.08	1.60	0.52	717	3.04	1.58	0.52	738	2.94	1.53	0.52	760

NOTE Q :Total capacity (kW) SHF :Sensible heat factor DB :Dry-bulb temperature
SHC :Sensible heat capacity (kW) INPUT :Total power input (W) WB :Wet-bulb temperature

PERFORMANCE DATA
COOL operation (230V)

MSC-A07WV -E1 : MUH-A07WV -E1

CAPACITY : 2.3(kW) SHF : 0.74 INPUT : 710(W)

		OUTDOOR DB(℃)											
INDOOR DB(℃)	INDOOR WB(℃)	35				40				43			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	2.25	1.26	0.56	696	2.07	1.16	0.56	738	1.99	1.11	0.56	753
21	20	2.37	1.04	0.44	724	2.21	0.97	0.44	760	2.13	0.94	0.44	781
22	18	2.25	1.35	0.60	696	2.07	1.24	0.60	738	1.99	1.19	0.60	753
22	20	2.37	1.14	0.48	724	2.21	1.06	0.48	760	2.13	1.02	0.48	781
22	22	2.51	0.90	0.36	753	2.35	0.84	0.36	795	2.27	0.82	0.36	809
23	18	2.25	1.44	0.64	696	2.07	1.32	0.64	738	1.99	1.27	0.64	753
23	20	2.37	1.23	0.52	724	2.21	1.15	0.52	760	2.13	1.11	0.52	781
23	22	2.51	1.00	0.40	753	2.35	0.94	0.40	795	2.27	0.91	0.40	809
24	18	2.25	1.53	0.68	696	2.07	1.41	0.68	738	1.99	1.35	0.68	753
24	20	2.37	1.33	0.56	724	2.21	1.24	0.56	760	2.13	1.19	0.56	781
24	22	2.51	1.10	0.44	753	2.35	1.03	0.44	795	2.27	1.00	0.44	809
24	24	2.65	0.85	0.32	781	2.48	0.79	0.32	817	2.42	0.77	0.32	834
25	18	2.25	1.62	0.72	696	2.07	1.49	0.72	738	1.99	1.43	0.72	753
25	20	2.37	1.42	0.60	724	2.21	1.32	0.60	760	2.13	1.28	0.60	781
25	22	2.51	1.20	0.48	753	2.35	1.13	0.48	795	2.27	1.09	0.48	809
25	24	2.65	0.95	0.36	781	2.48	0.89	0.36	817	2.42	0.87	0.36	834
26	18	2.25	1.71	0.76	696	2.07	1.57	0.76	738	1.99	1.51	0.76	753
26	20	2.37	1.52	0.64	724	2.21	1.41	0.64	760	2.13	1.36	0.64	781
26	22	2.51	1.30	0.52	753	2.35	1.22	0.52	795	2.27	1.18	0.52	809
26	24	2.65	1.06	0.40	781	2.48	0.99	0.40	817	2.42	0.97	0.40	834
26	26	2.78	0.78	0.28	809	2.62	0.73	0.28	845	2.54	0.71	0.28	863
27	18	2.25	1.80	0.80	696	2.07	1.66	0.80	738	1.99	1.59	0.80	753
27	20	2.37	1.61	0.68	724	2.21	1.50	0.68	760	2.13	1.45	0.68	781
27	22	2.51	1.40	0.56	753	2.35	1.31	0.56	795	2.27	1.27	0.56	809
27	24	2.65	1.16	0.44	781	2.48	1.09	0.44	817	2.42	1.06	0.44	834
27	26	2.78	0.89	0.32	809	2.62	0.84	0.32	845	2.54	0.81	0.32	863
28	18	2.25	1.89	0.84	696	2.07	1.74	0.84	738	1.99	1.67	0.84	753
28	20	2.37	1.71	0.72	724	2.21	1.59	0.72	760	2.13	1.53	0.72	781
28	22	2.51	1.50	0.60	753	2.35	1.41	0.60	795	2.27	1.36	0.60	809
28	24	2.65	1.27	0.48	781	2.48	1.19	0.48	817	2.42	1.16	0.48	834
28	26	2.78	1.00	0.36	809	2.62	0.94	0.36	845	2.54	0.91	0.36	863
29	18	2.25	1.98	0.88	696	2.07	1.82	0.88	738	1.99	1.75	0.88	753
29	20	2.37	1.80	0.76	724	2.21	1.68	0.76	760	2.13	1.62	0.76	781
29	22	2.51	1.60	0.64	753	2.35	1.50	0.64	795	2.27	1.45	0.64	809
29	24	2.65	1.38	0.52	781	2.48	1.29	0.52	817	2.42	1.26	0.52	834
29	26	2.78	1.11	0.40	809	2.62	1.05	0.40	845	2.54	1.02	0.40	863
30	18	2.25	2.07	0.92	696	2.07	1.90	0.92	738	1.99	1.83	0.92	753
30	20	2.37	1.90	0.80	724	2.21	1.77	0.80	760	2.13	1.70	0.80	781
30	22	2.51	1.70	0.68	753	2.35	1.60	0.68	795	2.27	1.54	0.68	809
30	24	2.65	1.48	0.56	781	2.48	1.39	0.56	817	2.42	1.35	0.56	834
30	26	2.78	1.22	0.44	809	2.62	1.15	0.44	845	2.54	1.12	0.44	863
31	18	2.25	2.16	0.96	696	2.07	1.99	0.96	738	1.99	1.91	0.96	753
31	20	2.37	1.99	0.84	724	2.21	1.85	0.84	760	2.13	1.79	0.84	781
31	22	2.51	1.81	0.72	753	2.35	1.69	0.72	795	2.27	1.63	0.72	809
31	24	2.65	1.59	0.60	781	2.48	1.49	0.60	817	2.42	1.45	0.60	834
31	26	2.78	1.34	0.48	809	2.62	1.26	0.48	845	2.54	1.22	0.48	863
32	18	2.25	2.25	1.00	696	2.07	2.07	1.00	738	1.99	1.99	1.00	753
32	20	2.37	2.08	0.88	724	2.21	1.94	0.88	760	2.13	1.87	0.88	781
32	22	2.51	1.91	0.76	753	2.35	1.78	0.76	795	2.27	1.72	0.76	809
32	24	2.65	1.69	0.64	781	2.48	1.59	0.64	817	2.42	1.55	0.64	834
32	26	2.78	1.45	0.52	809	2.62	1.36	0.52	845	2.54	1.32	0.52	863

NOTE Q :Total capacity (kW) SHF :Sensible heat factor DB :Dry-bulb temperature
SHC :Sensible heat capacity (kW) INPUT :Total power input (W) WB :Wet-bulb temperature

PERFORMANCE DATA
COOL operation (230V)

MSC-A09WV -E1 : MUH-A09WV -E1

CAPACITY : 2.55(kW) SHF : 0.70 INPUT : 780(W)

		OUTDOOR DB(℃)															
INDOOR DB(℃)	INDOOR WB(℃)	21				25				27				30			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	3.00	1.56	0.52	624	2.87	1.49	0.52	655	2.75	1.43	0.52	686	2.65	1.38	0.52	718
21	20	3.12	1.25	0.40	655	3.00	1.20	0.40	694	2.91	1.16	0.40	710	2.81	1.12	0.40	741
22	18	3.00	1.68	0.56	624	2.87	1.61	0.56	655	2.75	1.54	0.56	686	2.65	1.49	0.56	718
22	20	3.12	1.37	0.44	655	3.00	1.32	0.44	694	2.91	1.28	0.44	710	2.81	1.23	0.44	741
22	22	3.25	1.04	0.32	679	3.14	1.00	0.32	722	3.06	0.98	0.32	741	2.93	0.94	0.32	772
23	18	3.00	1.80	0.60	624	2.87	1.72	0.60	655	2.75	1.65	0.60	686	2.65	1.59	0.60	718
23	20	3.12	1.50	0.48	655	3.00	1.44	0.48	694	2.91	1.40	0.48	710	2.81	1.35	0.48	741
23	22	3.25	1.17	0.36	679	3.14	1.13	0.36	722	3.06	1.10	0.36	741	2.93	1.06	0.36	772
24	18	3.00	1.92	0.64	624	2.87	1.84	0.64	655	2.75	1.76	0.64	686	2.65	1.70	0.64	718
24	20	3.12	1.62	0.52	655	3.00	1.56	0.52	694	2.91	1.51	0.52	710	2.81	1.46	0.52	741
24	22	3.25	1.30	0.40	679	3.14	1.25	0.40	722	3.06	1.22	0.40	741	2.93	1.17	0.40	772
24	24	3.42	0.96	0.28	710	3.29	0.92	0.28	749	3.21	0.90	0.28	772	3.11	0.87	0.28	811
25	18	3.00	2.04	0.68	624	2.87	1.95	0.68	655	2.75	1.87	0.68	686	2.65	1.80	0.68	718
25	20	3.12	1.75	0.56	655	3.00	1.68	0.56	694	2.91	1.63	0.56	710	2.81	1.57	0.56	741
25	22	3.25	1.43	0.44	679	3.14	1.38	0.44	722	3.06	1.35	0.44	741	2.93	1.29	0.44	772
25	24	3.42	1.09	0.32	710	3.29	1.05	0.32	749	3.21	1.03	0.32	772	3.11	1.00	0.32	811
26	18	3.00	2.16	0.72	624	2.87	2.07	0.72	655	2.75	1.98	0.72	686	2.65	1.91	0.72	718
26	20	3.12	1.87	0.60	655	3.00	1.80	0.60	694	2.91	1.74	0.60	710	2.81	1.68	0.60	741
26	22	3.25	1.56	0.48	679	3.14	1.51	0.48	722	3.06	1.47	0.48	741	2.93	1.41	0.48	772
26	24	3.42	1.23	0.36	710	3.29	1.18	0.36	749	3.21	1.16	0.36	772	3.11	1.12	0.36	811
26	26	3.52	0.84	0.24	749	3.42	0.82	0.24	788	3.37	0.81	0.24	811	3.26	0.78	0.24	835
27	18	3.00	2.28	0.76	624	2.87	2.18	0.76	655	2.75	2.09	0.76	686	2.65	2.02	0.76	718
27	20	3.12	2.00	0.64	655	3.00	1.92	0.64	694	2.91	1.86	0.64	710	2.81	1.80	0.64	741
27	22	3.25	1.69	0.52	679	3.14	1.63	0.52	722	3.06	1.59	0.52	741	2.93	1.52	0.52	772
27	24	3.42	1.37	0.40	710	3.29	1.32	0.40	749	3.21	1.29	0.40	772	3.11	1.24	0.40	811
27	26	3.52	0.99	0.28	749	3.42	0.96	0.28	788	3.37	0.94	0.28	811	3.26	0.91	0.28	835
28	18	3.00	2.40	0.80	624	2.87	2.30	0.80	655	2.75	2.20	0.80	686	2.65	2.12	0.80	718
28	20	3.12	2.12	0.68	655	3.00	2.04	0.68	694	2.91	1.98	0.68	710	2.81	1.91	0.68	741
28	22	3.25	1.82	0.56	679	3.14	1.76	0.56	722	3.06	1.71	0.56	741	2.93	1.64	0.56	772
28	24	3.42	1.50	0.44	710	3.29	1.45	0.44	749	3.21	1.41	0.44	772	3.11	1.37	0.44	811
28	26	3.52	1.13	0.32	749	3.42	1.09	0.32	788	3.37	1.08	0.32	811	3.26	1.04	0.32	835
29	18	3.00	2.52	0.84	624	2.87	2.41	0.84	655	2.75	2.31	0.84	686	2.65	2.23	0.84	718
29	20	3.12	2.25	0.72	655	3.00	2.16	0.72	694	2.91	2.09	0.72	710	2.81	2.02	0.72	741
29	22	3.25	1.95	0.60	679	3.14	1.88	0.60	722	3.06	1.84	0.60	741	2.93	1.76	0.60	772
29	24	3.42	1.64	0.48	710	3.29	1.58	0.48	749	3.21	1.54	0.48	772	3.11	1.49	0.48	811
29	26	3.52	1.27	0.36	749	3.42	1.23	0.36	788	3.37	1.21	0.36	811	3.26	1.18	0.36	835
30	18	3.00	2.64	0.88	624	2.87	2.52	0.88	655	2.75	2.42	0.88	686	2.65	2.33	0.88	718
30	20	3.12	2.37	0.76	655	3.00	2.28	0.76	694	2.91	2.21	0.76	710	2.81	2.13	0.76	741
30	22	3.25	2.08	0.64	679	3.14	2.01	0.64	722	3.06	1.96	0.64	741	2.93	1.88	0.64	772
30	24	3.42	1.78	0.52	710	3.29	1.71	0.52	749	3.21	1.67	0.52	772	3.11	1.62	0.52	811
30	26	3.52	1.41	0.40	749	3.42	1.37	0.40	788	3.37	1.35	0.40	811	3.26	1.31	0.40	835
31	18	3.00	2.76	0.92	624	2.87	2.64	0.92	655	2.75	2.53	0.92	686	2.65	2.44	0.92	718
31	20	3.12	2.50	0.80	655	3.00	2.40	0.80	694	2.91	2.33	0.80	710	2.81	2.24	0.80	741
31	22	3.25	2.21	0.68	679	3.14	2.13	0.68	722	3.06	2.08	0.68	741	2.93	1.99	0.68	772
31	24	3.42	1.91	0.56	710	3.29	1.84	0.56	749	3.21	1.80	0.56	772	3.11	1.74	0.56	811
31	26	3.52	1.55	0.44	749	3.42	1.50	0.44	788	3.37	1.48	0.44	811	3.26	1.44	0.44	835
32	18	3.00	2.88	0.96	624	2.87	2.75	0.96	655	2.75	2.64	0.96	686	2.65	2.55	0.96	718
32	20	3.12	2.62	0.84	655	3.00	2.52	0.84	694	2.91	2.44	0.84	710	2.81	2.36	0.84	741
32	22	3.25	2.34	0.72	679	3.14	2.26	0.72	722	3.06	2.20	0.72	741	2.93	2.11	0.72	772
32	24	3.42	2.05	0.60	710	3.29	1.97	0.60	749	3.21	1.93	0.60	772	3.11	1.87	0.60	811
32	26	3.52	1.69	0.48	749	3.42	1.64	0.48	788	3.37	1.62	0.48	811	3.26	1.57	0.48	835

NOTE Q :Total capacity (kW) SHF :Sensible heat factor DB :Dry-bulb temperature
SHC :Sensible heat capacity (kW) INPUT :Total power input (W) WB :Wet-bulb temperature

PERFORMANCE DATA
COOL operation (230V)

MSC-A09WV -E1 : MUH-A09WV -E1

CAPACITY : 2.55(kW) SHF : 0.70 INPUT : 780(W)

		OUTDOOR DB(℃)											
INDOOR DB(℃)	INDOOR WB(℃)	35				40				43			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	2.50	1.30	0.52	764	2.30	1.19	0.52	811	2.21	1.15	0.52	827
21	20	2.63	1.05	0.40	796	2.45	0.98	0.40	835	2.36	0.94	0.40	858
22	18	2.50	1.40	0.56	764	2.30	1.29	0.56	811	2.21	1.24	0.56	827
22	20	2.63	1.16	0.44	796	2.45	1.08	0.44	835	2.36	1.04	0.44	858
22	22	2.78	0.89	0.32	827	2.60	0.83	0.32	874	2.51	0.80	0.32	889
23	18	2.50	1.50	0.60	764	2.30	1.38	0.60	811	2.21	1.32	0.60	827
23	20	2.63	1.26	0.48	796	2.45	1.18	0.48	835	2.36	1.13	0.48	858
23	22	2.78	1.00	0.36	827	2.60	0.94	0.36	874	2.51	0.90	0.36	889
24	18	2.50	1.60	0.64	764	2.30	1.47	0.64	811	2.21	1.41	0.64	827
24	20	2.63	1.37	0.52	796	2.45	1.27	0.52	835	2.36	1.23	0.52	858
24	22	2.78	1.11	0.40	827	2.60	1.04	0.40	874	2.51	1.00	0.40	889
24	24	2.93	0.82	0.28	858	2.75	0.77	0.28	897	2.68	0.75	0.28	917
25	18	2.50	1.70	0.68	764	2.30	1.56	0.68	811	2.21	1.50	0.68	827
25	20	2.63	1.47	0.56	796	2.45	1.37	0.56	835	2.36	1.32	0.56	858
25	22	2.78	1.22	0.44	827	2.60	1.14	0.44	874	2.51	1.11	0.44	889
25	24	2.93	0.94	0.32	858	2.75	0.88	0.32	897	2.68	0.86	0.32	917
26	18	2.50	1.80	0.72	764	2.30	1.65	0.72	811	2.21	1.59	0.72	827
26	20	2.63	1.58	0.60	796	2.45	1.47	0.60	835	2.36	1.42	0.60	858
26	22	2.78	1.33	0.48	827	2.60	1.25	0.48	874	2.51	1.21	0.48	889
26	24	2.93	1.06	0.36	858	2.75	0.99	0.36	897	2.68	0.96	0.36	917
26	26	3.09	0.74	0.24	889	2.91	0.70	0.24	928	2.82	0.68	0.24	948
27	18	2.50	1.90	0.76	764	2.30	1.74	0.76	811	2.21	1.68	0.76	827
27	20	2.63	1.68	0.64	796	2.45	1.57	0.64	835	2.36	1.51	0.64	858
27	22	2.78	1.45	0.52	827	2.60	1.35	0.52	874	2.51	1.31	0.52	889
27	24	2.93	1.17	0.40	858	2.75	1.10	0.40	897	2.68	1.07	0.40	917
27	26	3.09	0.86	0.28	889	2.91	0.81	0.28	928	2.82	0.79	0.28	948
28	18	2.50	2.00	0.80	764	2.30	1.84	0.80	811	2.21	1.76	0.80	827
28	20	2.63	1.79	0.68	796	2.45	1.66	0.68	835	2.36	1.60	0.68	858
28	22	2.78	1.56	0.56	827	2.60	1.46	0.56	874	2.51	1.41	0.56	889
28	24	2.93	1.29	0.44	858	2.75	1.21	0.44	897	2.68	1.18	0.44	917
28	26	3.09	0.99	0.32	889	2.91	0.93	0.32	928	2.82	0.90	0.32	948
29	18	2.50	2.10	0.84	764	2.30	1.93	0.84	811	2.21	1.85	0.84	827
29	20	2.63	1.89	0.72	796	2.45	1.76	0.72	835	2.36	1.70	0.72	858
29	22	2.78	1.67	0.60	827	2.60	1.56	0.60	874	2.51	1.51	0.60	889
29	24	2.93	1.41	0.48	858	2.75	1.32	0.48	897	2.68	1.29	0.48	917
29	26	3.09	1.11	0.36	889	2.91	1.05	0.36	928	2.82	1.01	0.36	948
30	18	2.50	2.20	0.88	764	2.30	2.02	0.88	811	2.21	1.94	0.88	827
30	20	2.63	2.00	0.76	796	2.45	1.86	0.76	835	2.36	1.79	0.76	858
30	22	2.78	1.78	0.64	827	2.60	1.66	0.64	874	2.51	1.61	0.64	889
30	24	2.93	1.52	0.52	858	2.75	1.43	0.52	897	2.68	1.39	0.52	917
30	26	3.09	1.23	0.40	889	2.91	1.16	0.40	928	2.82	1.13	0.40	948
31	18	2.50	2.30	0.92	764	2.30	2.11	0.92	811	2.21	2.03	0.92	827
31	20	2.63	2.10	0.80	796	2.45	1.96	0.80	835	2.36	1.89	0.80	858
31	22	2.78	1.89	0.68	827	2.60	1.77	0.68	874	2.51	1.71	0.68	889
31	24	2.93	1.64	0.56	858	2.75	1.54	0.56	897	2.68	1.50	0.56	917
31	26	3.09	1.36	0.44	889	2.91	1.28	0.44	928	2.82	1.24	0.44	948
32	18	2.50	2.40	0.96	764	2.30	2.20	0.96	811	2.21	2.12	0.96	827
32	20	2.63	2.21	0.84	796	2.45	2.06	0.84	835	2.36	1.98	0.84	858
32	22	2.78	2.00	0.72	827	2.60	1.87	0.72	874	2.51	1.81	0.72	889
32	24	2.93	1.76	0.60	858	2.75	1.65	0.60	897	2.68	1.61	0.60	917
32	26	3.09	1.48	0.48	889	2.91	1.40	0.48	928	2.82	1.35	0.48	948

NOTE Q :Total capacity (kW) SHF :Sensible heat factor DB :Dry-bulb temperature
SHC :Sensible heat capacity (kW) INPUT :Total power input (W) WB :Wet-bulb temperature

PERFORMANCE DATA
COOL operation (230V)

MSC-A12WV -E1 : MUH-A12WV -E1

CAPACITY : 3.40(kW) SHF : 0.67 INPUT : 1060(W)

		OUTDOOR DB(°C)															
INDOOR DB(°C)	INDOOR WB(°C)	21				25				27				30			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	4.00	1.96	0.49	848	3.83	1.87	0.49	890	3.67	1.80	0.49	933	3.54	1.73	0.49	975
21	20	4.17	1.54	0.37	890	4.00	1.48	0.37	943	3.88	1.43	0.37	965	3.74	1.38	0.37	1007
22	18	4.00	2.12	0.53	848	3.83	2.03	0.53	890	3.67	1.95	0.53	933	3.54	1.87	0.53	975
22	20	4.17	1.71	0.41	890	4.00	1.64	0.41	943	3.88	1.59	0.41	965	3.74	1.53	0.41	1007
22	22	4.34	1.26	0.29	922	4.18	1.21	0.29	981	4.08	1.18	0.29	1007	3.91	1.13	0.29	1049
23	18	4.00	2.28	0.57	848	3.83	2.18	0.57	890	3.67	2.09	0.57	933	3.54	2.02	0.57	975
23	20	4.17	1.87	0.45	890	4.00	1.80	0.45	943	3.88	1.74	0.45	965	3.74	1.68	0.45	1007
23	22	4.34	1.43	0.33	922	4.18	1.38	0.33	981	4.08	1.35	0.33	1007	3.91	1.29	0.33	1049
24	18	4.00	2.44	0.61	848	3.83	2.33	0.61	890	3.67	2.24	0.61	933	3.54	2.16	0.61	975
24	20	4.17	2.04	0.49	890	4.00	1.96	0.49	943	3.88	1.90	0.49	965	3.74	1.83	0.49	1007
24	22	4.34	1.60	0.37	922	4.18	1.55	0.37	981	4.08	1.51	0.37	1007	3.91	1.45	0.37	1049
24	24	4.56	1.14	0.25	965	4.39	1.10	0.25	1018	4.28	1.07	0.25	1049	4.15	1.04	0.25	1102
25	18	4.00	2.60	0.65	848	3.83	2.49	0.65	890	3.67	2.39	0.65	933	3.54	2.30	0.65	975
25	20	4.17	2.21	0.53	890	4.00	2.12	0.53	943	3.88	2.05	0.53	965	3.74	1.98	0.53	1007
25	22	4.34	1.78	0.41	922	4.18	1.71	0.41	981	4.08	1.67	0.41	1007	3.91	1.60	0.41	1049
25	24	4.56	1.32	0.29	965	4.39	1.27	0.29	1018	4.28	1.24	0.29	1049	4.15	1.20	0.29	1102
26	18	4.00	2.76	0.69	848	3.83	2.64	0.69	890	3.67	2.53	0.69	933	3.54	2.44	0.69	975
26	20	4.17	2.37	0.57	890	4.00	2.28	0.57	943	3.88	2.21	0.57	965	3.74	2.13	0.57	1007
26	22	4.34	1.95	0.45	922	4.18	1.88	0.45	981	4.08	1.84	0.45	1007	3.91	1.76	0.45	1049
26	24	4.56	1.50	0.33	965	4.39	1.45	0.33	1018	4.28	1.41	0.33	1049	4.15	1.37	0.33	1102
26	26	4.69	0.99	0.21	1018	4.56	0.96	0.21	1071	4.49	0.94	0.21	1102	4.35	0.91	0.21	1134
27	18	4.00	2.92	0.73	848	3.83	2.79	0.73	890	3.67	2.68	0.73	933	3.54	2.58	0.73	975
27	20	4.17	2.54	0.61	890	4.00	2.44	0.61	943	3.88	2.36	0.61	965	3.74	2.28	0.61	1007
27	22	4.34	2.12	0.49	922	4.18	2.05	0.49	981	4.08	2.00	0.49	1007	3.91	1.92	0.49	1049
27	24	4.56	1.69	0.37	965	4.39	1.62	0.37	1018	4.28	1.59	0.37	1049	4.15	1.53	0.37	1102
27	26	4.69	1.17	0.25	1018	4.56	1.14	0.25	1071	4.49	1.12	0.25	1102	4.35	1.09	0.25	1134
28	18	4.00	3.08	0.77	848	3.83	2.95	0.77	890	3.67	2.83	0.77	933	3.54	2.72	0.77	975
28	20	4.17	2.71	0.65	890	4.00	2.60	0.65	943	3.88	2.52	0.65	965	3.74	2.43	0.65	1007
28	22	4.34	2.30	0.53	922	4.18	2.22	0.53	981	4.08	2.16	0.53	1007	3.91	2.07	0.53	1049
28	24	4.56	1.87	0.41	965	4.39	1.80	0.41	1018	4.28	1.76	0.41	1049	4.15	1.70	0.41	1102
28	26	4.69	1.36	0.29	1018	4.56	1.32	0.29	1071	4.49	1.30	0.29	1102	4.35	1.26	0.29	1134
29	18	4.00	3.24	0.81	848	3.83	3.10	0.81	890	3.67	2.97	0.81	933	3.54	2.86	0.81	975
29	20	4.17	2.87	0.69	890	4.00	2.76	0.69	943	3.88	2.67	0.69	965	3.74	2.58	0.69	1007
29	22	4.34	2.47	0.57	922	4.18	2.38	0.57	981	4.08	2.33	0.57	1007	3.91	2.23	0.57	1049
29	24	4.56	2.05	0.45	965	4.39	1.97	0.45	1018	4.28	1.93	0.45	1049	4.15	1.87	0.45	1102
29	26	4.69	1.55	0.33	1018	4.56	1.50	0.33	1071	4.49	1.48	0.33	1102	4.35	1.44	0.33	1134
30	18	4.00	3.40	0.85	848	3.83	3.25	0.85	890	3.67	3.12	0.85	933	3.54	3.01	0.85	975
30	20	4.17	3.04	0.73	890	4.00	2.92	0.73	943	3.88	2.83	0.73	965	3.74	2.73	0.73	1007
30	22	4.34	2.64	0.61	922	4.18	2.55	0.61	981	4.08	2.49	0.61	1007	3.91	2.39	0.61	1049
30	24	4.56	2.23	0.49	965	4.39	2.15	0.49	1018	4.28	2.10	0.49	1049	4.15	2.03	0.49	1102
30	26	4.69	1.74	0.37	1018	4.56	1.69	0.37	1071	4.49	1.66	0.37	1102	4.35	1.61	0.37	1134
31	18	4.00	3.56	0.89	848	3.83	3.40	0.89	890	3.67	3.27	0.89	933	3.54	3.15	0.89	975
31	20	4.17	3.21	0.77	890	4.00	3.08	0.77	943	3.88	2.98	0.77	965	3.74	2.88	0.77	1007
31	22	4.34	2.82	0.65	922	4.18	2.72	0.65	981	4.08	2.65	0.65	1007	3.91	2.54	0.65	1049
31	24	4.56	2.41	0.53	965	4.39	2.32	0.53	1018	4.28	2.27	0.53	1049	4.15	2.20	0.53	1102
31	26	4.69	1.92	0.41	1018	4.56	1.87	0.41	1071	4.49	1.84	0.41	1102	4.35	1.78	0.41	1134
32	18	4.00	3.72	0.93	848	3.83	3.56	0.93	890	3.67	3.41	0.93	933	3.54	3.29	0.93	975
32	20	4.17	3.37	0.81	890	4.00	3.24	0.81	943	3.88	3.14	0.81	965	3.74	3.03	0.81	1007
32	22	4.34	2.99	0.69	922	4.18	2.89	0.69	981	4.08	2.82	0.69	1007	3.91	2.70	0.69	1049
32	24	4.56	2.60	0.57	965	4.39	2.50	0.57	1018	4.28	2.44	0.57	1049	4.15	2.36	0.57	1102
32	26	4.69	2.11	0.45	1018	4.56	2.05	0.45	1071	4.49	2.02	0.45	1102	4.35	1.96	0.45	1134

NOTE Q :Total capacity (kW) SHF :Sensible heat factor DB :Dry-bulb temperature
SHC :Sensible heat capacity (kW) INPUT :Total power input (W) WB :Wet-bulb temperature

PERFORMANCE DATA
COOL operation (230V)

MSC-A12WV -E1 : MUH-A12WV -E1

CAPACITY : 3.40(kW) SHF : 0.67 INPUT : 1060(W)

		OUTDOOR DB(℃)											
INDOOR	INDOOR	35				40				43			
DB(℃)	WB(℃)	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	3.33	1.63	0.49	1039	3.06	1.50	0.49	1102	2.94	1.44	0.49	1124
21	20	3.50	1.30	0.37	1081	3.26	1.21	0.37	1134	3.15	1.16	0.37	1166
22	18	3.33	1.77	0.53	1039	3.06	1.62	0.53	1102	2.94	1.56	0.53	1124
22	20	3.50	1.44	0.41	1081	3.26	1.34	0.41	1134	3.15	1.29	0.41	1166
22	22	3.71	1.07	0.29	1124	3.47	1.01	0.29	1187	3.35	0.97	0.29	1208
23	18	3.33	1.90	0.57	1039	3.06	1.74	0.57	1102	2.94	1.68	0.57	1124
23	20	3.50	1.58	0.45	1081	3.26	1.47	0.45	1134	3.15	1.42	0.45	1166
23	22	3.71	1.22	0.33	1124	3.47	1.14	0.33	1187	3.35	1.11	0.33	1208
24	18	3.33	2.03	0.61	1039	3.06	1.87	0.61	1102	2.94	1.79	0.61	1124
24	20	3.50	1.72	0.49	1081	3.26	1.60	0.49	1134	3.15	1.54	0.49	1166
24	22	3.71	1.37	0.37	1124	3.47	1.28	0.37	1187	3.35	1.24	0.37	1208
24	24	3.91	0.98	0.25	1166	3.67	0.92	0.25	1219	3.57	0.89	0.25	1246
25	18	3.33	2.17	0.65	1039	3.06	1.99	0.65	1102	2.94	1.91	0.65	1124
25	20	3.50	1.86	0.53	1081	3.26	1.73	0.53	1134	3.15	1.67	0.53	1166
25	22	3.71	1.52	0.41	1124	3.47	1.42	0.41	1187	3.35	1.37	0.41	1208
25	24	3.91	1.13	0.29	1166	3.67	1.06	0.29	1219	3.57	1.04	0.29	1246
26	18	3.33	2.30	0.69	1039	3.06	2.11	0.69	1102	2.94	2.03	0.69	1124
26	20	3.50	2.00	0.57	1081	3.26	1.86	0.57	1134	3.15	1.79	0.57	1166
26	22	3.71	1.67	0.45	1124	3.47	1.56	0.45	1187	3.35	1.51	0.45	1208
26	24	3.91	1.29	0.33	1166	3.67	1.21	0.33	1219	3.57	1.18	0.33	1246
26	26	4.11	0.86	0.21	1208	3.88	0.81	0.21	1261	3.76	0.79	0.21	1288
27	18	3.33	2.43	0.73	1039	3.06	2.23	0.73	1102	2.94	2.15	0.73	1124
27	20	3.50	2.14	0.61	1081	3.26	1.99	0.61	1134	3.15	1.92	0.61	1166
27	22	3.71	1.82	0.49	1124	3.47	1.70	0.49	1187	3.35	1.64	0.49	1208
27	24	3.91	1.45	0.37	1166	3.67	1.36	0.37	1219	3.57	1.32	0.37	1246
27	26	4.11	1.03	0.25	1208	3.88	0.97	0.25	1261	3.76	0.94	0.25	1288
28	18	3.33	2.57	0.77	1039	3.06	2.36	0.77	1102	2.94	2.26	0.77	1124
28	20	3.50	2.28	0.65	1081	3.26	2.12	0.65	1134	3.15	2.04	0.65	1166
28	22	3.71	1.96	0.53	1124	3.47	1.84	0.53	1187	3.35	1.77	0.53	1208
28	24	3.91	1.60	0.41	1166	3.67	1.51	0.41	1219	3.57	1.46	0.41	1246
28	26	4.11	1.19	0.29	1208	3.88	1.12	0.29	1261	3.76	1.09	0.29	1288
29	18	3.33	2.70	0.81	1039	3.06	2.48	0.81	1102	2.94	2.38	0.81	1124
29	20	3.50	2.42	0.69	1081	3.26	2.25	0.69	1134	3.15	2.17	0.69	1166
29	22	3.71	2.11	0.57	1124	3.47	1.98	0.57	1187	3.35	1.91	0.57	1208
29	24	3.91	1.76	0.45	1166	3.67	1.65	0.45	1219	3.57	1.61	0.45	1246
29	26	4.11	1.36	0.33	1208	3.88	1.28	0.33	1261	3.76	1.24	0.33	1288
30	18	3.33	2.83	0.85	1039	3.06	2.60	0.85	1102	2.94	2.50	0.85	1124
30	20	3.50	2.56	0.73	1081	3.26	2.38	0.73	1134	3.15	2.30	0.73	1166
30	22	3.71	2.26	0.61	1124	3.47	2.12	0.61	1187	3.35	2.04	0.61	1208
30	24	3.91	1.92	0.49	1166	3.67	1.80	0.49	1219	3.57	1.75	0.49	1246
30	26	4.11	1.52	0.37	1208	3.88	1.43	0.37	1261	3.76	1.39	0.37	1288
31	18	3.33	2.97	0.89	1039	3.06	2.72	0.89	1102	2.94	2.62	0.89	1124
31	20	3.50	2.70	0.77	1081	3.26	2.51	0.77	1134	3.15	2.42	0.77	1166
31	22	3.71	2.41	0.65	1124	3.47	2.25	0.65	1187	3.35	2.18	0.65	1208
31	24	3.91	2.07	0.53	1166	3.67	1.95	0.53	1219	3.57	1.89	0.53	1246
31	26	4.11	1.69	0.41	1208	3.88	1.59	0.41	1261	3.76	1.54	0.41	1288
32	18	3.33	3.10	0.93	1039	3.06	2.85	0.93	1102	2.94	2.74	0.93	1124
32	20	3.50	2.84	0.81	1081	3.26	2.64	0.81	1134	3.15	2.55	0.81	1166
32	22	3.71	2.56	0.69	1124	3.47	2.39	0.69	1187	3.35	2.31	0.69	1208
32	24	3.91	2.23	0.57	1166	3.67	2.09	0.57	1219	3.57	2.03	0.57	1246
32	26	4.11	1.85	0.45	1208	3.88	1.74	0.45	1261	3.76	1.69	0.45	1288

NOTE Q :Total capacity (kW) SHF :Sensible heat factor DB :Dry-bulb temperature
SHC :Sensible heat capacity (kW) INPUT :Total power input (W) WB :Wet-bulb temperature

PERFORMANCE DATA
HEAT operation (230V)

MSC-A07WV -E1 : MUH-A07WV -E1

CAPACITY : 2.5 kW INPUT : 690 W

INDOOR DB(℃)	OUTDOOR WB(℃)													
	-10		-5		0		5		10		15		20	
	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT
15	1.58	449	1.90	538	2.23	607	2.55	656	2.88	697	3.18	718	3.50	731
21	1.50	483	1.80	573	2.13	635	2.43	683	2.75	718	3.05	738	3.36	766
26	1.35	518	1.68	607	1.98	669	2.30	718	2.63	752	2.93	773	3.25	794

MSC-A09WV -E1 : MUH-A09WV -E1

CAPACITY : 3.05 kW INPUT : 840 W

INDOOR DB(℃)	OUTDOOR WB(℃)													
	-10		-5		0		5		10		15		20	
	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT
15	1.92	546	2.32	655	2.71	739	3.11	798	3.51	848	3.87	874	4.27	890
21	1.83	588	2.20	697	2.59	773	2.96	832	3.36	874	3.72	899	4.10	932
26	1.65	630	2.04	739	2.41	815	2.81	874	3.20	916	3.57	941	3.97	966

MSC-A12WV -E1 : MUH-A12WV -E1

CAPACITY : 3.9 kW INPUT : 1080 W

INDOOR DB(℃)	OUTDOOR WB(℃)													
	-10		-5		0		5		10		15		20	
	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT	Q	INPUT
15	2.46	702	2.96	842	3.47	950	3.98	1026	4.49	1091	4.95	1123	5.46	1145
21	2.34	756	2.81	896	3.32	994	3.78	1069	4.29	1123	4.76	1156	5.25	1199
26	2.11	810	2.61	950	3.08	1048	3.59	1123	4.10	1177	4.56	1210	5.07	1242

NOTE Q:Total capacity (kW) INPUT:Total power input (W) DB:Dry-bulb temperature WB:Wet-bulb temperature

PERFORMANCE DATA
COOL operation (230V)

MSC-A07WV -E1(Single) : MUX-A10WV -E1

CAPACITY : 2.4(kW) SHF : 0.74 INPUT : 760(W)

		OUTDOOR DB(℃)															
INDOOR DB(℃)	INDOOR WB(℃)	21				25				27				30			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	2.82	1.58	0.56	608	2.70	1.51	0.56	638	2.59	1.45	0.56	669	2.50	1.40	0.56	699
21	20	2.94	1.29	0.44	638	2.82	1.24	0.44	676	2.74	1.20	0.44	692	2.64	1.16	0.44	722
22	18	2.82	1.69	0.60	608	2.70	1.62	0.60	638	2.59	1.56	0.60	669	2.50	1.50	0.60	699
22	20	2.94	1.41	0.48	638	2.82	1.35	0.48	676	2.74	1.31	0.48	692	2.64	1.27	0.48	722
22	22	3.06	1.10	0.36	661	2.95	1.06	0.36	703	2.88	1.04	0.36	722	2.76	0.99	0.36	752
23	18	2.82	1.80	0.64	608	2.70	1.73	0.64	638	2.59	1.66	0.64	669	2.50	1.60	0.64	699
23	20	2.94	1.53	0.52	638	2.82	1.47	0.52	676	2.74	1.42	0.52	692	2.64	1.37	0.52	722
23	22	3.06	1.22	0.40	661	2.95	1.18	0.40	703	2.88	1.15	0.40	722	2.76	1.10	0.40	752
24	18	2.82	1.92	0.68	608	2.70	1.84	0.68	638	2.59	1.76	0.68	669	2.50	1.70	0.68	699
24	20	2.94	1.65	0.56	638	2.82	1.58	0.56	676	2.74	1.53	0.56	692	2.64	1.48	0.56	722
24	22	3.06	1.35	0.44	661	2.95	1.30	0.44	703	2.88	1.27	0.44	722	2.76	1.21	0.44	752
24	24	3.22	1.03	0.32	692	3.10	0.99	0.32	730	3.02	0.97	0.32	752	2.93	0.94	0.32	790
25	18	2.82	2.03	0.72	608	2.70	1.94	0.72	638	2.59	1.87	0.72	669	2.50	1.80	0.72	699
25	20	2.94	1.76	0.60	638	2.82	1.69	0.60	676	2.74	1.64	0.60	692	2.64	1.58	0.60	722
25	22	3.06	1.47	0.48	661	2.95	1.42	0.48	703	2.88	1.38	0.48	722	2.76	1.32	0.48	752
25	24	3.22	1.16	0.36	692	3.10	1.11	0.36	730	3.02	1.09	0.36	752	2.93	1.05	0.36	790
26	18	2.82	2.14	0.76	608	2.70	2.05	0.76	638	2.59	1.97	0.76	669	2.50	1.90	0.76	699
26	20	2.94	1.88	0.64	638	2.82	1.80	0.64	676	2.74	1.75	0.64	692	2.64	1.69	0.64	722
26	22	3.06	1.59	0.52	661	2.95	1.54	0.52	703	2.88	1.50	0.52	722	2.76	1.44	0.52	752
26	24	3.22	1.29	0.40	692	3.10	1.24	0.40	730	3.02	1.21	0.40	752	2.93	1.17	0.40	790
26	26	3.31	0.93	0.28	730	3.22	0.90	0.28	768	3.17	0.89	0.28	790	3.07	0.86	0.28	813
27	18	2.82	2.26	0.80	608	2.70	2.16	0.80	638	2.59	2.07	0.80	669	2.50	2.00	0.80	699
27	20	2.94	2.00	0.68	638	2.82	1.92	0.68	676	2.74	1.86	0.68	692	2.64	1.80	0.68	722
27	22	3.06	1.71	0.56	661	2.95	1.65	0.56	703	2.88	1.61	0.56	722	2.76	1.55	0.56	752
27	24	3.22	1.42	0.44	692	3.10	1.36	0.44	730	3.02	1.33	0.44	752	2.93	1.29	0.44	790
27	26	3.31	1.06	0.32	730	3.22	1.03	0.32	768	3.17	1.01	0.32	790	3.07	0.98	0.32	813
28	18	2.82	2.37	0.84	608	2.70	2.27	0.84	638	2.59	2.18	0.84	669	2.50	2.10	0.84	699
28	20	2.94	2.12	0.72	638	2.82	2.03	0.72	676	2.74	1.97	0.72	692	2.64	1.90	0.72	722
28	22	3.06	1.84	0.60	661	2.95	1.77	0.60	703	2.88	1.73	0.60	722	2.76	1.66	0.60	752
28	24	3.22	1.54	0.48	692	3.10	1.49	0.48	730	3.02	1.45	0.48	752	2.93	1.41	0.48	790
28	26	3.31	1.19	0.36	730	3.22	1.16	0.36	768	3.17	1.14	0.36	790	3.07	1.11	0.36	813
29	18	2.82	2.48	0.88	608	2.70	2.38	0.88	638	2.59	2.28	0.88	669	2.50	2.20	0.88	699
29	20	2.94	2.23	0.76	638	2.82	2.14	0.76	676	2.74	2.08	0.76	692	2.64	2.01	0.76	722
29	22	3.06	1.96	0.64	661	2.95	1.89	0.64	703	2.88	1.84	0.64	722	2.76	1.77	0.64	752
29	24	3.22	1.67	0.52	692	3.10	1.61	0.52	730	3.02	1.57	0.52	752	2.93	1.52	0.52	790
29	26	3.31	1.32	0.40	730	3.22	1.29	0.40	768	3.17	1.27	0.40	790	3.07	1.23	0.40	813
30	18	2.82	2.59	0.92	608	2.70	2.48	0.92	638	2.59	2.38	0.92	669	2.50	2.30	0.92	699
30	20	2.94	2.35	0.80	638	2.82	2.26	0.80	676	2.74	2.19	0.80	692	2.64	2.11	0.80	722
30	22	3.06	2.08	0.68	661	2.95	2.01	0.68	703	2.88	1.96	0.68	722	2.76	1.88	0.68	752
30	24	3.22	1.80	0.56	692	3.10	1.73	0.56	730	3.02	1.69	0.56	752	2.93	1.64	0.56	790
30	26	3.31	1.46	0.44	730	3.22	1.42	0.44	768	3.17	1.39	0.44	790	3.07	1.35	0.44	813
31	18	2.82	2.71	0.96	608	2.70	2.59	0.96	638	2.59	2.49	0.96	669	2.50	2.40	0.96	699
31	20	2.94	2.47	0.84	638	2.82	2.37	0.84	676	2.74	2.30	0.84	692	2.64	2.22	0.84	722
31	22	3.06	2.20	0.72	661	2.95	2.13	0.72	703	2.88	2.07	0.72	722	2.76	1.99	0.72	752
31	24	3.22	1.93	0.60	692	3.10	1.86	0.60	730	3.02	1.81	0.60	752	2.93	1.76	0.60	790
31	26	3.31	1.59	0.48	730	3.22	1.54	0.48	768	3.17	1.52	0.48	790	3.07	1.47	0.48	813
32	18	2.82	2.82	1.00	608	2.70	2.70	1.00	638	2.59	2.59	1.00	669	2.50	2.50	1.00	699
32	20	2.94	2.59	0.88	638	2.82	2.48	0.88	676	2.74	2.41	0.88	692	2.64	2.32	0.88	722
32	22	3.06	2.33	0.76	661	2.95	2.24	0.76	703	2.88	2.19	0.76	722	2.76	2.10	0.76	752
32	24	3.22	2.06	0.64	692	3.10	1.98	0.64	730	3.02	1.94	0.64	752	2.93	1.87	0.64	790
32	26	3.31	1.72	0.52	730	3.22	1.67	0.52	768	3.17	1.65	0.52	790	3.07	1.60	0.52	813

NOTE Q :Total capacity (kW) SHF :Sensible heat factor DB :Dry-bulb temperature
SHC :Sensible heat capacity (kW) INPUT :Total power input (W) WB :Wet-bulb temperature

PERFORMANCE DATA
COOL operation (230V)

MSC-A07WV -E1(Single) : MUX-A10WV -E1

CAPACITY : 2.4(kW) SHF : 0.74 INPUT : 760(W)

		OUTDOOR DB(℃)											
INDOOR DB(℃)	INDOOR WB(℃)	35				40				43			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	2.35	1.32	0.56	745	2.16	1.21	0.56	790	2.08	1.16	0.56	806
21	20	2.47	1.09	0.44	775	2.30	1.01	0.44	813	2.22	0.98	0.44	836
22	18	2.35	1.41	0.60	745	2.16	1.30	0.60	790	2.08	1.25	0.60	806
22	20	2.47	1.19	0.48	775	2.30	1.11	0.48	813	2.22	1.07	0.48	836
22	22	2.62	0.94	0.36	806	2.45	0.88	0.36	851	2.36	0.85	0.36	866
23	18	2.35	1.51	0.64	745	2.16	1.38	0.64	790	2.08	1.33	0.64	806
23	20	2.47	1.29	0.52	775	2.30	1.20	0.52	813	2.22	1.15	0.52	836
23	22	2.62	1.05	0.40	806	2.45	0.98	0.40	851	2.36	0.95	0.40	866
24	18	2.35	1.60	0.68	745	2.16	1.47	0.68	790	2.08	1.41	0.68	806
24	20	2.47	1.38	0.56	775	2.30	1.29	0.56	813	2.22	1.24	0.56	836
24	22	2.62	1.15	0.44	806	2.45	1.08	0.44	851	2.36	1.04	0.44	866
24	24	2.76	0.88	0.32	836	2.59	0.83	0.32	874	2.52	0.81	0.32	893
25	18	2.35	1.69	0.72	745	2.16	1.56	0.72	790	2.08	1.49	0.72	806
25	20	2.47	1.48	0.60	775	2.30	1.38	0.60	813	2.22	1.33	0.60	836
25	22	2.62	1.26	0.48	806	2.45	1.18	0.48	851	2.36	1.13	0.48	866
25	24	2.76	0.99	0.36	836	2.59	0.93	0.36	874	2.52	0.91	0.36	893
26	18	2.35	1.79	0.76	745	2.16	1.64	0.76	790	2.08	1.58	0.76	806
26	20	2.47	1.58	0.64	775	2.30	1.47	0.64	813	2.22	1.42	0.64	836
26	22	2.62	1.36	0.52	806	2.45	1.27	0.52	851	2.36	1.23	0.52	866
26	24	2.76	1.10	0.40	836	2.59	1.04	0.40	874	2.52	1.01	0.40	893
26	26	2.90	0.81	0.28	866	2.74	0.77	0.28	904	2.65	0.74	0.28	923
27	18	2.35	1.88	0.80	745	2.16	1.73	0.80	790	2.08	1.66	0.80	806
27	20	2.47	1.68	0.68	775	2.30	1.57	0.68	813	2.22	1.51	0.68	836
27	22	2.62	1.46	0.56	806	2.45	1.37	0.56	851	2.36	1.32	0.56	866
27	24	2.76	1.21	0.44	836	2.59	1.14	0.44	874	2.52	1.11	0.44	893
27	26	2.90	0.93	0.32	866	2.74	0.88	0.32	904	2.65	0.85	0.32	923
28	18	2.35	1.98	0.84	745	2.16	1.81	0.84	790	2.08	1.74	0.84	806
28	20	2.47	1.78	0.72	775	2.30	1.66	0.72	813	2.22	1.60	0.72	836
28	22	2.62	1.57	0.60	806	2.45	1.47	0.60	851	2.36	1.42	0.60	866
28	24	2.76	1.32	0.48	836	2.59	1.24	0.48	874	2.52	1.21	0.48	893
28	26	2.90	1.05	0.36	866	2.74	0.98	0.36	904	2.65	0.95	0.36	923
29	18	2.35	2.07	0.88	745	2.16	1.90	0.88	790	2.08	1.83	0.88	806
29	20	2.47	1.88	0.76	775	2.30	1.75	0.76	813	2.22	1.69	0.76	836
29	22	2.62	1.67	0.64	806	2.45	1.57	0.64	851	2.36	1.51	0.64	866
29	24	2.76	1.44	0.52	836	2.59	1.35	0.52	874	2.52	1.31	0.52	893
29	26	2.90	1.16	0.40	866	2.74	1.09	0.40	904	2.65	1.06	0.40	923
30	18	2.35	2.16	0.92	745	2.16	1.99	0.92	790	2.08	1.91	0.92	806
30	20	2.47	1.98	0.80	775	2.30	1.84	0.80	813	2.22	1.78	0.80	836
30	22	2.62	1.78	0.68	806	2.45	1.66	0.68	851	2.36	1.61	0.68	866
30	24	2.76	1.55	0.56	836	2.59	1.45	0.56	874	2.52	1.41	0.56	893
30	26	2.90	1.28	0.44	866	2.74	1.20	0.44	904	2.65	1.17	0.44	923
31	18	2.35	2.26	0.96	745	2.16	2.07	0.96	790	2.08	1.99	0.96	806
31	20	2.47	2.08	0.84	775	2.30	1.94	0.84	813	2.22	1.86	0.84	836
31	22	2.62	1.88	0.72	806	2.45	1.76	0.72	851	2.36	1.70	0.72	866
31	24	2.76	1.66	0.60	836	2.59	1.56	0.60	874	2.52	1.51	0.60	893
31	26	2.90	1.39	0.48	866	2.74	1.31	0.48	904	2.65	1.27	0.48	923
32	18	2.35	2.35	1.00	745	2.16	2.16	1.00	790	2.08	2.08	1.00	806
32	20	2.47	2.18	0.88	775	2.30	2.03	0.88	813	2.22	1.95	0.88	836
32	22	2.62	1.99	0.76	806	2.45	1.86	0.76	851	2.36	1.80	0.76	866
32	24	2.76	1.77	0.64	836	2.59	1.66	0.64	874	2.52	1.61	0.64	893
32	26	2.90	1.51	0.52	866	2.74	1.42	0.52	904	2.65	1.38	0.52	923

NOTE Q :Total capacity (kW) SHF :Sensible heat factor DB :Dry-bulb temperature
SHC :Sensible heat capacity (kW) INPUT :Total power input (W) WB :Wet-bulb temperature

PERFORMANCE DATA
COOL operation (230V)

MSC-A07WV -E1 (Single : Room B) : MUX-A19WV -E1

CAPACITY : 2.4(kW) SHF : 0.74 INPUT : 820(W)

		OUTDOOR DB(℃)															
INDOOR DB(℃)	INDOOR WB(℃)	21				25				27				30			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	2.82	1.58	0.56	656	2.70	1.51	0.56	689	2.59	1.45	0.56	722	2.50	1.40	0.56	754
21	20	2.94	1.29	0.44	689	2.82	1.24	0.44	730	2.74	1.20	0.44	746	2.64	1.16	0.44	779
22	18	2.82	1.69	0.60	656	2.70	1.62	0.60	689	2.59	1.56	0.60	722	2.50	1.50	0.60	754
22	20	2.94	1.41	0.48	689	2.82	1.35	0.48	730	2.74	1.31	0.48	746	2.64	1.27	0.48	779
22	22	3.06	1.10	0.36	713	2.95	1.06	0.36	759	2.88	1.04	0.36	779	2.76	0.99	0.36	812
23	18	2.82	1.80	0.64	656	2.70	1.73	0.64	689	2.59	1.66	0.64	722	2.50	1.60	0.64	754
23	20	2.94	1.53	0.52	689	2.82	1.47	0.52	730	2.74	1.42	0.52	746	2.64	1.37	0.52	779
23	22	3.06	1.22	0.40	713	2.95	1.18	0.40	759	2.88	1.15	0.40	779	2.76	1.10	0.40	812
24	18	2.82	1.92	0.68	656	2.70	1.84	0.68	689	2.59	1.76	0.68	722	2.50	1.70	0.68	754
24	20	2.94	1.65	0.56	689	2.82	1.58	0.56	730	2.74	1.53	0.56	746	2.64	1.48	0.56	779
24	22	3.06	1.35	0.44	713	2.95	1.30	0.44	759	2.88	1.27	0.44	779	2.76	1.21	0.44	812
24	24	3.22	1.03	0.32	746	3.10	0.99	0.32	787	3.02	0.97	0.32	812	2.93	0.94	0.32	853
25	18	2.82	2.03	0.72	656	2.70	1.94	0.72	689	2.59	1.87	0.72	722	2.50	1.80	0.72	754
25	20	2.94	1.76	0.60	689	2.82	1.69	0.60	730	2.74	1.64	0.60	746	2.64	1.58	0.60	779
25	22	3.06	1.47	0.48	713	2.95	1.42	0.48	759	2.88	1.38	0.48	779	2.76	1.32	0.48	812
25	24	3.22	1.16	0.36	746	3.10	1.11	0.36	787	3.02	1.09	0.36	812	2.93	1.05	0.36	853
26	18	2.82	2.14	0.76	656	2.70	2.05	0.76	689	2.59	1.97	0.76	722	2.50	1.90	0.76	754
26	20	2.94	1.88	0.64	689	2.82	1.80	0.64	730	2.74	1.75	0.64	746	2.64	1.69	0.64	779
26	22	3.06	1.59	0.52	713	2.95	1.54	0.52	759	2.88	1.50	0.52	779	2.76	1.44	0.52	812
26	24	3.22	1.29	0.40	746	3.10	1.24	0.40	787	3.02	1.21	0.40	812	2.93	1.17	0.40	853
26	26	3.31	0.93	0.28	787	3.22	0.90	0.28	828	3.17	0.89	0.28	853	3.07	0.86	0.28	877
27	18	2.82	2.26	0.80	656	2.70	2.16	0.80	689	2.59	2.07	0.80	722	2.50	2.00	0.80	754
27	20	2.94	2.00	0.68	689	2.82	1.92	0.68	730	2.74	1.86	0.68	746	2.64	1.80	0.68	779
27	22	3.06	1.71	0.56	713	2.95	1.65	0.56	759	2.88	1.61	0.56	779	2.76	1.55	0.56	812
27	24	3.22	1.42	0.44	746	3.10	1.36	0.44	787	3.02	1.33	0.44	812	2.93	1.29	0.44	853
27	26	3.31	1.06	0.32	787	3.22	1.03	0.32	828	3.17	1.01	0.32	853	3.07	0.98	0.32	877
28	18	2.82	2.37	0.84	656	2.70	2.27	0.84	689	2.59	2.18	0.84	722	2.50	2.10	0.84	754
28	20	2.94	2.12	0.72	689	2.82	2.03	0.72	730	2.74	1.97	0.72	746	2.64	1.90	0.72	779
28	22	3.06	1.84	0.60	713	2.95	1.77	0.60	759	2.88	1.73	0.60	779	2.76	1.66	0.60	812
28	24	3.22	1.54	0.48	746	3.10	1.49	0.48	787	3.02	1.45	0.48	812	2.93	1.41	0.48	853
28	26	3.31	1.19	0.36	787	3.22	1.16	0.36	828	3.17	1.14	0.36	853	3.07	1.11	0.36	877
29	18	2.82	2.48	0.88	656	2.70	2.38	0.88	689	2.59	2.28	0.88	722	2.50	2.20	0.88	754
29	20	2.94	2.23	0.76	689	2.82	2.14	0.76	730	2.74	2.08	0.76	746	2.64	2.01	0.76	779
29	22	3.06	1.96	0.64	713	2.95	1.89	0.64	759	2.88	1.84	0.64	779	2.76	1.77	0.64	812
29	24	3.22	1.67	0.52	746	3.10	1.61	0.52	787	3.02	1.57	0.52	812	2.93	1.52	0.52	853
29	26	3.31	1.32	0.40	787	3.22	1.29	0.40	828	3.17	1.27	0.40	853	3.07	1.23	0.40	877
30	18	2.82	2.59	0.92	656	2.70	2.48	0.92	689	2.59	2.38	0.92	722	2.50	2.30	0.92	754
30	20	2.94	2.35	0.80	689	2.82	2.26	0.80	730	2.74	2.19	0.80	746	2.64	2.11	0.80	779
30	22	3.06	2.08	0.68	713	2.95	2.01	0.68	759	2.88	1.96	0.68	779	2.76	1.88	0.68	812
30	24	3.22	1.80	0.56	746	3.10	1.73	0.56	787	3.02	1.69	0.56	812	2.93	1.64	0.56	853
30	26	3.31	1.46	0.44	787	3.22	1.42	0.44	828	3.17	1.39	0.44	853	3.07	1.35	0.44	877
31	18	2.82	2.71	0.96	656	2.70	2.59	0.96	689	2.59	2.49	0.96	722	2.50	2.40	0.96	754
31	20	2.94	2.47	0.84	689	2.82	2.37	0.84	730	2.74	2.30	0.84	746	2.64	2.22	0.84	779
31	22	3.06	2.20	0.72	713	2.95	2.13	0.72	759	2.88	2.07	0.72	779	2.76	1.99	0.72	812
31	24	3.22	1.93	0.60	746	3.10	1.86	0.60	787	3.02	1.81	0.60	812	2.93	1.76	0.60	853
31	26	3.31	1.59	0.48	787	3.22	1.54	0.48	828	3.17	1.52	0.48	853	3.07	1.47	0.48	877
32	18	2.82	2.82	1.00	656	2.70	2.70	1.00	689	2.59	2.59	1.00	722	2.50	2.50	1.00	754
32	20	2.94	2.59	0.88	689	2.82	2.48	0.88	730	2.74	2.41	0.88	746	2.64	2.32	0.88	779
32	22	3.06	2.33	0.76	713	2.95	2.24	0.76	759	2.88	2.19	0.76	779	2.76	2.10	0.76	812
32	24	3.22	2.06	0.64	746	3.10	1.98	0.64	787	3.02	1.94	0.64	812	2.93	1.87	0.64	853
32	26	3.31	1.72	0.52	787	3.22	1.67	0.52	828	3.17	1.65	0.52	853	3.07	1.60	0.52	877

NOTE Q :Total capacity (kW) SHF :Sensible heat factor DB :Dry-bulb temperature
SHC :Sensible heat capacity (kW) INPUT :Total power input (W) WB :Wet-bulb temperature

PERFORMANCE DATA
COOL operation (230V)

MSC-A07WV -E1 (Single : Room B) : MUX-A19WV -E1

CAPACITY : 2.4(kW) SHF : 0.74 INPUT : 820(W)

		OUTDOOR DB(℃)											
INDOOR DB(℃)	INDOOR WB(℃)	35				40				43			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	2.35	1.32	0.56	804	2.16	1.21	0.56	853	2.08	1.16	0.56	869
21	20	2.47	1.09	0.44	836	2.30	1.01	0.44	877	2.22	0.98	0.44	902
22	18	2.35	1.41	0.60	804	2.16	1.30	0.60	853	2.08	1.25	0.60	869
22	20	2.47	1.19	0.48	836	2.30	1.11	0.48	877	2.22	1.07	0.48	902
22	22	2.62	0.94	0.36	869	2.45	0.88	0.36	918	2.36	0.85	0.36	935
23	18	2.35	1.51	0.64	804	2.16	1.38	0.64	853	2.08	1.33	0.64	869
23	20	2.47	1.29	0.52	836	2.30	1.20	0.52	877	2.22	1.15	0.52	902
23	22	2.62	1.05	0.40	869	2.45	0.98	0.40	918	2.36	0.95	0.40	935
24	18	2.35	1.60	0.68	804	2.16	1.47	0.68	853	2.08	1.41	0.68	869
24	20	2.47	1.38	0.56	836	2.30	1.29	0.56	877	2.22	1.24	0.56	902
24	22	2.62	1.15	0.44	869	2.45	1.08	0.44	918	2.36	1.04	0.44	935
24	24	2.76	0.88	0.32	902	2.59	0.83	0.32	943	2.52	0.81	0.32	964
25	18	2.35	1.69	0.72	804	2.16	1.56	0.72	853	2.08	1.49	0.72	869
25	20	2.47	1.48	0.60	836	2.30	1.38	0.60	877	2.22	1.33	0.60	902
25	22	2.62	1.26	0.48	869	2.45	1.18	0.48	918	2.36	1.13	0.48	935
25	24	2.76	0.99	0.36	902	2.59	0.93	0.36	943	2.52	0.91	0.36	964
26	18	2.35	1.79	0.76	804	2.16	1.64	0.76	853	2.08	1.58	0.76	869
26	20	2.47	1.58	0.64	836	2.30	1.47	0.64	877	2.22	1.42	0.64	902
26	22	2.62	1.36	0.52	869	2.45	1.27	0.52	918	2.36	1.23	0.52	935
26	24	2.76	1.10	0.40	902	2.59	1.04	0.40	943	2.52	1.01	0.40	964
26	26	2.90	0.81	0.28	935	2.74	0.77	0.28	976	2.65	0.74	0.28	996
27	18	2.35	1.88	0.80	804	2.16	1.73	0.80	853	2.08	1.66	0.80	869
27	20	2.47	1.68	0.68	836	2.30	1.57	0.68	877	2.22	1.51	0.68	902
27	22	2.62	1.46	0.56	869	2.45	1.37	0.56	918	2.36	1.32	0.56	935
27	24	2.76	1.21	0.44	902	2.59	1.14	0.44	943	2.52	1.11	0.44	964
27	26	2.90	0.93	0.32	935	2.74	0.88	0.32	976	2.65	0.85	0.32	996
28	18	2.35	1.98	0.84	804	2.16	1.81	0.84	853	2.08	1.74	0.84	869
28	20	2.47	1.78	0.72	836	2.30	1.66	0.72	877	2.22	1.60	0.72	902
28	22	2.62	1.57	0.60	869	2.45	1.47	0.60	918	2.36	1.42	0.60	935
28	24	2.76	1.32	0.48	902	2.59	1.24	0.48	943	2.52	1.21	0.48	964
28	26	2.90	1.05	0.36	935	2.74	0.98	0.36	976	2.65	0.95	0.36	996
29	18	2.35	2.07	0.88	804	2.16	1.90	0.88	853	2.08	1.83	0.88	869
29	20	2.47	1.88	0.76	836	2.30	1.75	0.76	877	2.22	1.69	0.76	902
29	22	2.62	1.67	0.64	869	2.45	1.57	0.64	918	2.36	1.51	0.64	935
29	24	2.76	1.44	0.52	902	2.59	1.35	0.52	943	2.52	1.31	0.52	964
29	26	2.90	1.16	0.40	935	2.74	1.09	0.40	976	2.65	1.06	0.40	996
30	18	2.35	2.16	0.92	804	2.16	1.99	0.92	853	2.08	1.91	0.92	869
30	20	2.47	1.98	0.80	836	2.30	1.84	0.80	877	2.22	1.78	0.80	902
30	22	2.62	1.78	0.68	869	2.45	1.66	0.68	918	2.36	1.61	0.68	935
30	24	2.76	1.55	0.56	902	2.59	1.45	0.56	943	2.52	1.41	0.56	964
30	26	2.90	1.28	0.44	935	2.74	1.20	0.44	976	2.65	1.17	0.44	996
31	18	2.35	2.26	0.96	804	2.16	2.07	0.96	853	2.08	1.99	0.96	869
31	20	2.47	2.08	0.84	836	2.30	1.94	0.84	877	2.22	1.86	0.84	902
31	22	2.62	1.88	0.72	869	2.45	1.76	0.72	918	2.36	1.70	0.72	935
31	24	2.76	1.66	0.60	902	2.59	1.56	0.60	943	2.52	1.51	0.60	964
31	26	2.90	1.39	0.48	935	2.74	1.31	0.48	976	2.65	1.27	0.48	996
32	18	2.35	2.35	1.00	804	2.16	2.16	1.00	853	2.08	2.08	1.00	869
32	20	2.47	2.18	0.88	836	2.30	2.03	0.88	877	2.22	1.95	0.88	902
32	22	2.62	1.99	0.76	869	2.45	1.86	0.76	918	2.36	1.80	0.76	935
32	24	2.76	1.77	0.64	902	2.59	1.66	0.64	943	2.52	1.61	0.64	964
32	26	2.90	1.51	0.52	935	2.74	1.42	0.52	976	2.65	1.38	0.52	996

NOTE Q :Total capacity (kW) SHF :Sensible heat factor DB :Dry-bulb temperature
SHC :Sensible heat capacity (kW) INPUT :Total power input (W) WB :Wet-bulb temperature

PERFORMANCE DATA
COOL operation (230V)

MSC-A12WV -E1 (Single : Room A) : MUX-A19WV -E1

CAPACITY : 3.5(kW) SHF : 0.73 INPUT : 1320(W)

		OUTDOOR DB(℃)															
INDOOR DB(℃)	INDOOR WB(℃)	21				25				27				30			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	4.11	2.25	0.55	1056	3.94	2.15	0.55	1109	3.78	2.07	0.55	1162	3.64	1.99	0.55	1214
21	20	4.29	1.83	0.43	1109	4.11	1.76	0.43	1175	3.99	1.70	0.43	1201	3.85	1.64	0.43	1254
22	18	4.11	2.41	0.59	1056	3.94	2.31	0.59	1109	3.78	2.22	0.59	1162	3.64	2.14	0.59	1214
22	20	4.29	2.00	0.47	1109	4.11	1.92	0.47	1175	3.99	1.86	0.47	1201	3.85	1.80	0.47	1254
22	22	4.46	1.55	0.35	1148	4.31	1.49	0.35	1221	4.20	1.46	0.35	1254	4.03	1.40	0.35	1307
23	18	4.11	2.58	0.63	1056	3.94	2.47	0.63	1109	3.78	2.37	0.63	1162	3.64	2.28	0.63	1214
23	20	4.29	2.17	0.51	1109	4.11	2.09	0.51	1175	3.99	2.02	0.51	1201	3.85	1.95	0.51	1254
23	22	4.46	1.73	0.39	1148	4.31	1.67	0.39	1221	4.20	1.63	0.39	1254	4.03	1.56	0.39	1307
24	18	4.11	2.74	0.67	1056	3.94	2.63	0.67	1109	3.78	2.52	0.67	1162	3.64	2.43	0.67	1214
24	20	4.29	2.35	0.55	1109	4.11	2.25	0.55	1175	3.99	2.18	0.55	1201	3.85	2.11	0.55	1254
24	22	4.46	1.91	0.43	1148	4.31	1.84	0.43	1221	4.20	1.79	0.43	1254	4.03	1.72	0.43	1307
24	24	4.69	1.44	0.31	1201	4.52	1.39	0.31	1267	4.41	1.35	0.31	1307	4.27	1.31	0.31	1373
25	18	4.11	2.91	0.71	1056	3.94	2.78	0.71	1109	3.78	2.67	0.71	1162	3.64	2.57	0.71	1214
25	20	4.29	2.52	0.59	1109	4.11	2.41	0.59	1175	3.99	2.34	0.59	1201	3.85	2.26	0.59	1254
25	22	4.46	2.08	0.47	1148	4.31	2.01	0.47	1221	4.20	1.96	0.47	1254	4.03	1.88	0.47	1307
25	24	4.69	1.63	0.35	1201	4.52	1.57	0.35	1267	4.41	1.53	0.35	1307	4.27	1.48	0.35	1373
26	18	4.11	3.07	0.75	1056	3.94	2.94	0.75	1109	3.78	2.82	0.75	1162	3.64	2.72	0.75	1214
26	20	4.29	2.69	0.63	1109	4.11	2.58	0.63	1175	3.99	2.50	0.63	1201	3.85	2.41	0.63	1254
26	22	4.46	2.26	0.51	1148	4.31	2.18	0.51	1221	4.20	2.13	0.51	1254	4.03	2.04	0.51	1307
26	24	4.69	1.82	0.39	1201	4.52	1.75	0.39	1267	4.41	1.71	0.39	1307	4.27	1.65	0.39	1373
26	26	4.83	1.29	0.27	1267	4.69	1.25	0.27	1333	4.62	1.23	0.27	1373	4.48	1.20	0.27	1412
27	18	4.11	3.24	0.79	1056	3.94	3.10	0.79	1109	3.78	2.97	0.79	1162	3.64	2.86	0.79	1214
27	20	4.29	2.86	0.67	1109	4.11	2.74	0.67	1175	3.99	2.66	0.67	1201	3.85	2.57	0.67	1254
27	22	4.46	2.44	0.55	1148	4.31	2.35	0.55	1221	4.20	2.30	0.55	1254	4.03	2.20	0.55	1307
27	24	4.69	2.00	0.43	1201	4.52	1.93	0.43	1267	4.41	1.88	0.43	1307	4.27	1.82	0.43	1373
27	26	4.83	1.48	0.31	1267	4.69	1.44	0.31	1333	4.62	1.42	0.31	1373	4.48	1.38	0.31	1412
28	18	4.11	3.40	0.83	1056	3.94	3.26	0.83	1109	3.78	3.13	0.83	1162	3.64	3.01	0.83	1214
28	20	4.29	3.03	0.71	1109	4.11	2.91	0.71	1175	3.99	2.82	0.71	1201	3.85	2.72	0.71	1254
28	22	4.46	2.62	0.59	1148	4.31	2.53	0.59	1221	4.20	2.47	0.59	1254	4.03	2.36	0.59	1307
28	24	4.69	2.19	0.47	1201	4.52	2.11	0.47	1267	4.41	2.06	0.47	1307	4.27	1.99	0.47	1373
28	26	4.83	1.68	0.35	1267	4.69	1.63	0.35	1333	4.62	1.60	0.35	1373	4.48	1.55	0.35	1412
29	18	4.11	3.57	0.87	1056	3.94	3.41	0.87	1109	3.78	3.28	0.87	1162	3.64	3.16	0.87	1214
29	20	4.29	3.20	0.75	1109	4.11	3.07	0.75	1175	3.99	2.98	0.75	1201	3.85	2.88	0.75	1254
29	22	4.46	2.80	0.63	1148	4.31	2.70	0.63	1221	4.20	2.63	0.63	1254	4.03	2.52	0.63	1307
29	24	4.69	2.38	0.51	1201	4.52	2.29	0.51	1267	4.41	2.24	0.51	1307	4.27	2.16	0.51	1373
29	26	4.83	1.87	0.39	1267	4.69	1.82	0.39	1333	4.62	1.79	0.39	1373	4.48	1.73	0.39	1412
30	18	4.11	3.73	0.91	1056	3.94	3.57	0.91	1109	3.78	3.43	0.91	1162	3.64	3.30	0.91	1214
30	20	4.29	3.37	0.79	1109	4.11	3.24	0.79	1175	3.99	3.14	0.79	1201	3.85	3.03	0.79	1254
30	22	4.46	2.98	0.67	1148	4.31	2.87	0.67	1221	4.20	2.80	0.67	1254	4.03	2.68	0.67	1307
30	24	4.69	2.57	0.55	1201	4.52	2.47	0.55	1267	4.41	2.41	0.55	1307	4.27	2.34	0.55	1373
30	26	4.83	2.06	0.43	1267	4.69	2.00	0.43	1333	4.62	1.97	0.43	1373	4.48	1.91	0.43	1412
31	18	4.11	3.89	0.95	1056	3.94	3.73	0.95	1109	3.78	3.58	0.95	1162	3.64	3.45	0.95	1214
31	20	4.29	3.55	0.83	1109	4.11	3.40	0.83	1175	3.99	3.30	0.83	1201	3.85	3.18	0.83	1254
31	22	4.46	3.15	0.71	1148	4.31	3.04	0.71	1221	4.20	2.97	0.71	1254	4.03	2.85	0.71	1307
31	24	4.69	2.75	0.59	1201	4.52	2.65	0.59	1267	4.41	2.59	0.59	1307	4.27	2.51	0.59	1373
31	26	4.83	2.26	0.47	1267	4.69	2.19	0.47	1333	4.62	2.16	0.47	1373	4.48	2.09	0.47	1412
32	18	4.11	4.06	0.99	1056	3.94	3.89	0.99	1109	3.78	3.73	0.99	1162	3.64	3.59	0.99	1214
32	20	4.29	3.72	0.87	1109	4.11	3.57	0.87	1175	3.99	3.46	0.87	1201	3.85	3.34	0.87	1254
32	22	4.46	3.33	0.75	1148	4.31	3.22	0.75	1221	4.20	3.14	0.75	1254	4.03	3.01	0.75	1307
32	24	4.69	2.94	0.63	1201	4.52	2.83	0.63	1267	4.41	2.77	0.63	1307	4.27	2.68	0.63	1373
32	26	4.83	2.45	0.51	1267	4.69	2.38	0.51	1333	4.62	2.34	0.51	1373	4.48	2.27	0.51	1412

NOTE Q :Total capacity (kW) SHF :Sensible heat factor DB :Dry-bulb temperature
SHC :Sensible heat capacity (kW) INPUT :Total power input (W) WB :Wet-bulb temperature

PERFORMANCE DATA
COOL operation (230V)

MSC-A12WV -E1 (Single : Room A) : MUX-A19WV -E1

CAPACITY : 3.5(kW) SHF : 0.73 INPUT : 1320(W)

		OUTDOOR DB(℃)											
INDOOR DB(℃)	INDOOR WB(℃)	35				40				43			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	3.43	1.88	0.55	1294	3.15	1.72	0.55	1373	3.03	1.66	0.55	1399
21	20	3.61	1.54	0.43	1346	3.36	1.43	0.43	1412	3.24	1.38	0.43	1452
22	18	3.43	2.01	0.59	1294	3.15	1.85	0.59	1373	3.03	1.78	0.59	1399
22	20	3.61	1.68	0.47	1346	3.36	1.57	0.47	1412	3.24	1.51	0.47	1452
22	22	3.82	1.32	0.35	1399	3.57	1.24	0.35	1478	3.45	1.20	0.35	1505
23	18	3.43	2.15	0.63	1294	3.15	1.98	0.63	1373	3.03	1.90	0.63	1399
23	20	3.61	1.83	0.51	1346	3.36	1.70	0.51	1412	3.24	1.64	0.51	1452
23	22	3.82	1.48	0.39	1399	3.57	1.38	0.39	1478	3.45	1.33	0.39	1505
24	18	3.43	2.29	0.67	1294	3.15	2.10	0.67	1373	3.03	2.02	0.67	1399
24	20	3.61	1.97	0.55	1346	3.36	1.84	0.55	1412	3.24	1.77	0.55	1452
24	22	3.82	1.63	0.43	1399	3.57	1.52	0.43	1478	3.45	1.47	0.43	1505
24	24	4.03	1.24	0.31	1452	3.78	1.16	0.31	1518	3.68	1.13	0.31	1551
25	18	3.43	2.43	0.71	1294	3.15	2.23	0.71	1373	3.03	2.14	0.71	1399
25	20	3.61	2.12	0.59	1346	3.36	1.97	0.59	1412	3.24	1.90	0.59	1452
25	22	3.82	1.78	0.47	1399	3.57	1.67	0.47	1478	3.45	1.61	0.47	1505
25	24	4.03	1.40	0.35	1452	3.78	1.31	0.35	1518	3.68	1.28	0.35	1551
26	18	3.43	2.56	0.75	1294	3.15	2.35	0.75	1373	3.03	2.26	0.75	1399
26	20	3.61	2.26	0.63	1346	3.36	2.11	0.63	1412	3.24	2.03	0.63	1452
26	22	3.82	1.93	0.51	1399	3.57	1.81	0.51	1478	3.45	1.75	0.51	1505
26	24	4.03	1.56	0.39	1452	3.78	1.46	0.39	1518	3.68	1.42	0.39	1551
26	26	4.24	1.13	0.27	1505	3.99	1.07	0.27	1571	3.87	1.03	0.27	1604
27	18	3.43	2.70	0.79	1294	3.15	2.48	0.79	1373	3.03	2.38	0.79	1399
27	20	3.61	2.40	0.67	1346	3.36	2.24	0.67	1412	3.24	2.16	0.67	1452
27	22	3.82	2.09	0.55	1399	3.57	1.95	0.55	1478	3.45	1.89	0.55	1505
27	24	4.03	1.72	0.43	1452	3.78	1.61	0.43	1518	3.68	1.57	0.43	1551
27	26	4.24	1.30	0.31	1505	3.99	1.22	0.31	1571	3.87	1.19	0.31	1604
28	18	3.43	2.84	0.83	1294	3.15	2.61	0.83	1373	3.03	2.50	0.83	1399
28	20	3.61	2.55	0.71	1346	3.36	2.38	0.71	1412	3.24	2.29	0.71	1452
28	22	3.82	2.24	0.59	1399	3.57	2.10	0.59	1478	3.45	2.02	0.59	1505
28	24	4.03	1.88	0.47	1452	3.78	1.77	0.47	1518	3.68	1.72	0.47	1551
28	26	4.24	1.47	0.35	1505	3.99	1.38	0.35	1571	3.87	1.34	0.35	1604
29	18	3.43	2.97	0.87	1294	3.15	2.73	0.87	1373	3.03	2.62	0.87	1399
29	20	3.61	2.69	0.75	1346	3.36	2.51	0.75	1412	3.24	2.42	0.75	1452
29	22	3.82	2.39	0.63	1399	3.57	2.24	0.63	1478	3.45	2.16	0.63	1505
29	24	4.03	2.04	0.51	1452	3.78	1.92	0.51	1518	3.68	1.86	0.51	1551
29	26	4.24	1.64	0.39	1505	3.99	1.54	0.39	1571	3.87	1.50	0.39	1604
30	18	3.43	3.11	0.91	1294	3.15	2.86	0.91	1373	3.03	2.75	0.91	1399
30	20	3.61	2.84	0.79	1346	3.36	2.64	0.79	1412	3.24	2.55	0.79	1452
30	22	3.82	2.54	0.67	1399	3.57	2.38	0.67	1478	3.45	2.30	0.67	1505
30	24	4.03	2.20	0.55	1452	3.78	2.07	0.55	1518	3.68	2.01	0.55	1551
30	26	4.24	1.81	0.43	1505	3.99	1.70	0.43	1571	3.87	1.65	0.43	1604
31	18	3.43	3.25	0.95	1294	3.15	2.98	0.95	1373	3.03	2.87	0.95	1399
31	20	3.61	2.98	0.83	1346	3.36	2.78	0.83	1412	3.24	2.68	0.83	1452
31	22	3.82	2.70	0.71	1399	3.57	2.52	0.71	1478	3.45	2.44	0.71	1505
31	24	4.03	2.36	0.59	1452	3.78	2.22	0.59	1518	3.68	2.16	0.59	1551
31	26	4.24	1.98	0.47	1505	3.99	1.86	0.47	1571	3.87	1.81	0.47	1604
32	18	3.43	3.39	0.99	1294	3.15	3.11	0.99	1373	3.03	2.99	0.99	1399
32	20	3.61	3.13	0.87	1346	3.36	2.91	0.87	1412	3.24	2.81	0.87	1452
32	22	3.82	2.85	0.75	1399	3.57	2.67	0.75	1478	3.45	2.58	0.75	1505
32	24	4.03	2.52	0.63	1452	3.78	2.37	0.63	1518	3.68	2.30	0.63	1551
32	26	4.24	2.15	0.51	1505	3.99	2.02	0.51	1571	3.87	1.96	0.51	1604

NOTE Q :Total capacity (kW) SHF :Sensible heat factor DB :Dry-bulb temperature
SHC :Sensible heat capacity (kW) INPUT :Total power input (W) WB :Wet-bulb temperature

PERFORMANCE DATA
COOL operation (230V)

MSC-A09WV -E1 (Single : Room A) : MUX-A20WV -E1

CAPACITY : 2.6(kW) SHF : 0.75 INPUT : 850(W)

		OUTDOOR DB(℃)															
INDOOR DB(℃)	INDOOR WB(℃)	21				25				27				30			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	3.06	1.74	0.57	680	2.93	1.67	0.57	714	2.81	1.60	0.57	748	2.70	1.54	0.57	782
21	20	3.19	1.43	0.45	714	3.06	1.37	0.45	757	2.96	1.33	0.45	774	2.86	1.29	0.45	808
22	18	3.06	1.86	0.61	680	2.93	1.78	0.61	714	2.81	1.71	0.61	748	2.70	1.65	0.61	782
22	20	3.19	1.56	0.49	714	3.06	1.50	0.49	757	2.96	1.45	0.49	774	2.86	1.40	0.49	808
22	22	3.32	1.23	0.37	740	3.20	1.18	0.37	786	3.12	1.15	0.37	808	2.99	1.11	0.37	842
23	18	3.06	1.99	0.65	680	2.93	1.90	0.65	714	2.81	1.83	0.65	748	2.70	1.76	0.65	782
23	20	3.19	1.69	0.53	714	3.06	1.62	0.53	757	2.96	1.57	0.53	774	2.86	1.52	0.53	808
23	22	3.32	1.36	0.41	740	3.20	1.31	0.41	786	3.12	1.28	0.41	808	2.99	1.23	0.41	842
24	18	3.06	2.11	0.69	680	2.93	2.02	0.69	714	2.81	1.94	0.69	748	2.70	1.87	0.69	782
24	20	3.19	1.82	0.57	714	3.06	1.74	0.57	757	2.96	1.69	0.57	774	2.86	1.63	0.57	808
24	22	3.32	1.49	0.45	740	3.20	1.44	0.45	786	3.12	1.40	0.45	808	2.99	1.35	0.45	842
24	24	3.48	1.15	0.33	774	3.35	1.11	0.33	816	3.28	1.08	0.33	842	3.17	1.05	0.33	884
25	18	3.06	2.23	0.73	680	2.93	2.14	0.73	714	2.81	2.05	0.73	748	2.70	1.97	0.73	782
25	20	3.19	1.94	0.61	714	3.06	1.86	0.61	757	2.96	1.81	0.61	774	2.86	1.74	0.61	808
25	22	3.32	1.62	0.49	740	3.20	1.57	0.49	786	3.12	1.53	0.49	808	2.99	1.47	0.49	842
25	24	3.48	1.29	0.37	774	3.35	1.24	0.37	816	3.28	1.21	0.37	842	3.17	1.17	0.37	884
26	18	3.06	2.35	0.77	680	2.93	2.25	0.77	714	2.81	2.16	0.77	748	2.70	2.08	0.77	782
26	20	3.19	2.07	0.65	714	3.06	1.99	0.65	757	2.96	1.93	0.65	774	2.86	1.86	0.65	808
26	22	3.32	1.76	0.53	740	3.20	1.69	0.53	786	3.12	1.65	0.53	808	2.99	1.58	0.53	842
26	24	3.48	1.43	0.41	774	3.35	1.38	0.41	816	3.28	1.34	0.41	842	3.17	1.30	0.41	884
26	26	3.59	1.04	0.29	816	3.48	1.01	0.29	859	3.43	1.00	0.29	884	3.33	0.97	0.29	910
27	18	3.06	2.47	0.81	680	2.93	2.37	0.81	714	2.81	2.27	0.81	748	2.70	2.19	0.81	782
27	20	3.19	2.20	0.69	714	3.06	2.11	0.69	757	2.96	2.05	0.69	774	2.86	1.97	0.69	808
27	22	3.32	1.89	0.57	740	3.20	1.82	0.57	786	3.12	1.78	0.57	808	2.99	1.70	0.57	842
27	24	3.48	1.57	0.45	774	3.35	1.51	0.45	816	3.28	1.47	0.45	842	3.17	1.43	0.45	884
27	26	3.59	1.18	0.33	816	3.48	1.15	0.33	859	3.43	1.13	0.33	884	3.33	1.10	0.33	910
28	18	3.06	2.60	0.85	680	2.93	2.49	0.85	714	2.81	2.39	0.85	748	2.70	2.30	0.85	782
28	20	3.19	2.33	0.73	714	3.06	2.23	0.73	757	2.96	2.16	0.73	774	2.86	2.09	0.73	808
28	22	3.32	2.02	0.61	740	3.20	1.95	0.61	786	3.12	1.90	0.61	808	2.99	1.82	0.61	842
28	24	3.48	1.71	0.49	774	3.35	1.64	0.49	816	3.28	1.61	0.49	842	3.17	1.55	0.49	884
28	26	3.59	1.33	0.37	816	3.48	1.29	0.37	859	3.43	1.27	0.37	884	3.33	1.23	0.37	910
29	18	3.06	2.72	0.89	680	2.93	2.60	0.89	714	2.81	2.50	0.89	748	2.70	2.41	0.89	782
29	20	3.19	2.45	0.77	714	3.06	2.35	0.77	757	2.96	2.28	0.77	774	2.86	2.20	0.77	808
29	22	3.32	2.15	0.65	740	3.20	2.08	0.65	786	3.12	2.03	0.65	808	2.99	1.94	0.65	842
29	24	3.48	1.85	0.53	774	3.35	1.78	0.53	816	3.28	1.74	0.53	842	3.17	1.68	0.53	884
29	26	3.59	1.47	0.41	816	3.48	1.43	0.41	859	3.43	1.41	0.41	884	3.33	1.36	0.41	910
30	18	3.06	2.84	0.93	680	2.93	2.72	0.93	714	2.81	2.61	0.93	748	2.70	2.51	0.93	782
30	20	3.19	2.58	0.81	714	3.06	2.47	0.81	757	2.96	2.40	0.81	774	2.86	2.32	0.81	808
30	22	3.32	2.29	0.69	740	3.20	2.21	0.69	786	3.12	2.15	0.69	808	2.99	2.06	0.69	842
30	24	3.48	1.99	0.57	774	3.35	1.91	0.57	816	3.28	1.87	0.57	842	3.17	1.81	0.57	884
30	26	3.59	1.61	0.45	816	3.48	1.57	0.45	859	3.43	1.54	0.45	884	3.33	1.50	0.45	910
31	18	3.06	2.96	0.97	680	2.93	2.84	0.97	714	2.81	2.72	0.97	748	2.70	2.62	0.97	782
31	20	3.19	2.71	0.85	714	3.06	2.60	0.85	757	2.96	2.52	0.85	774	2.86	2.43	0.85	808
31	22	3.32	2.42	0.73	740	3.20	2.33	0.73	786	3.12	2.28	0.73	808	2.99	2.18	0.73	842
31	24	3.48	2.13	0.61	774	3.35	2.05	0.61	816	3.28	2.00	0.61	842	3.17	1.93	0.61	884
31	26	3.59	1.76	0.49	816	3.48	1.71	0.49	859	3.43	1.68	0.49	884	3.33	1.63	0.49	910
32	18	3.06	3.09	1.01	680	2.93	2.95	1.01	714	2.81	2.84	1.01	748	2.70	2.73	1.01	782
32	20	3.19	2.83	0.89	714	3.06	2.72	0.89	757	2.96	2.64	0.89	774	2.86	2.55	0.89	808
32	22	3.32	2.55	0.77	740	3.20	2.46	0.77	786	3.12	2.40	0.77	808	2.99	2.30	0.77	842
32	24	3.48	2.26	0.65	774	3.35	2.18	0.65	816	3.28	2.13	0.65	842	3.17	2.06	0.65	884
32	26	3.59	1.90	0.53	816	3.48	1.85	0.53	859	3.43	1.82	0.53	884	3.33	1.76	0.53	910

NOTE Q :Total capacity (kW) SHF :Sensible heat factor DB :Dry-bulb temperature
SHC :Sensible heat capacity (kW) INPUT :Total power input (W) WB :Wet-bulb temperature

PERFORMANCE DATA
COOL operation (230V)

MSC-A09WV -E1 (Single : Room A) : MUX-A20WV -E1

CAPACITY : 2.6(kW) SHF : 0.75 INPUT : 850(W)

		OUTDOOR DB(℃)											
INDOOR DB(℃)	INDOOR WB(℃)	35				40				43			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	2.55	1.45	0.57	833	2.34	1.33	0.57	884	2.25	1.28	0.57	901
21	20	2.68	1.21	0.45	867	2.50	1.12	0.45	910	2.41	1.08	0.45	935
22	18	2.55	1.55	0.61	833	2.34	1.43	0.61	884	2.25	1.37	0.61	901
22	20	2.68	1.31	0.49	867	2.50	1.22	0.49	910	2.41	1.18	0.49	935
22	22	2.83	1.05	0.37	901	2.65	0.98	0.37	952	2.56	0.95	0.37	969
23	18	2.55	1.66	0.65	833	2.34	1.52	0.65	884	2.25	1.46	0.65	901
23	20	2.68	1.42	0.53	867	2.50	1.32	0.53	910	2.41	1.27	0.53	935
23	22	2.83	1.16	0.41	901	2.65	1.09	0.41	952	2.56	1.05	0.41	969
24	18	2.55	1.76	0.69	833	2.34	1.61	0.69	884	2.25	1.55	0.69	901
24	20	2.68	1.53	0.57	867	2.50	1.42	0.57	910	2.41	1.37	0.57	935
24	22	2.83	1.28	0.45	901	2.65	1.19	0.45	952	2.56	1.15	0.45	969
24	24	2.99	0.99	0.33	935	2.81	0.93	0.33	978	2.73	0.90	0.33	999
25	18	2.55	1.86	0.73	833	2.34	1.71	0.73	884	2.25	1.64	0.73	901
25	20	2.68	1.63	0.61	867	2.50	1.52	0.61	910	2.41	1.47	0.61	935
25	22	2.83	1.39	0.49	901	2.65	1.30	0.49	952	2.56	1.25	0.49	969
25	24	2.99	1.11	0.37	935	2.81	1.04	0.37	978	2.73	1.01	0.37	999
26	18	2.55	1.96	0.77	833	2.34	1.80	0.77	884	2.25	1.73	0.77	901
26	20	2.68	1.74	0.65	867	2.50	1.62	0.65	910	2.41	1.56	0.65	935
26	22	2.83	1.50	0.53	901	2.65	1.41	0.53	952	2.56	1.36	0.53	969
26	24	2.99	1.23	0.41	935	2.81	1.15	0.41	978	2.73	1.12	0.41	999
26	26	3.15	0.91	0.29	969	2.96	0.86	0.29	1012	2.87	0.83	0.29	1033
27	18	2.55	2.06	0.81	833	2.34	1.90	0.81	884	2.25	1.82	0.81	901
27	20	2.68	1.85	0.69	867	2.50	1.72	0.69	910	2.41	1.66	0.69	935
27	22	2.83	1.62	0.57	901	2.65	1.51	0.57	952	2.56	1.46	0.57	969
27	24	2.99	1.35	0.45	935	2.81	1.26	0.45	978	2.73	1.23	0.45	999
27	26	3.15	1.04	0.33	969	2.96	0.98	0.33	1012	2.87	0.95	0.33	1033
28	18	2.55	2.17	0.85	833	2.34	1.99	0.85	884	2.25	1.91	0.85	901
28	20	2.68	1.95	0.73	867	2.50	1.82	0.73	910	2.41	1.76	0.73	935
28	22	2.83	1.73	0.61	901	2.65	1.62	0.61	952	2.56	1.56	0.61	969
28	24	2.99	1.47	0.49	935	2.81	1.38	0.49	978	2.73	1.34	0.49	999
28	26	3.15	1.16	0.37	969	2.96	1.10	0.37	1012	2.87	1.06	0.37	1033
29	18	2.55	2.27	0.89	833	2.34	2.08	0.89	884	2.25	2.00	0.89	901
29	20	2.68	2.06	0.77	867	2.50	1.92	0.77	910	2.41	1.85	0.77	935
29	22	2.83	1.84	0.65	901	2.65	1.72	0.65	952	2.56	1.66	0.65	969
29	24	2.99	1.58	0.53	935	2.81	1.49	0.53	978	2.73	1.45	0.53	999
29	26	3.15	1.29	0.41	969	2.96	1.22	0.41	1012	2.87	1.18	0.41	1033
30	18	2.55	2.37	0.93	833	2.34	2.18	0.93	884	2.25	2.09	0.93	901
30	20	2.68	2.17	0.81	867	2.50	2.02	0.81	910	2.41	1.95	0.81	935
30	22	2.83	1.96	0.69	901	2.65	1.83	0.69	952	2.56	1.77	0.69	969
30	24	2.99	1.70	0.57	935	2.81	1.60	0.57	978	2.73	1.56	0.57	999
30	26	3.15	1.42	0.45	969	2.96	1.33	0.45	1012	2.87	1.29	0.45	1033
31	18	2.55	2.47	0.97	833	2.34	2.27	0.97	884	2.25	2.18	0.97	901
31	20	2.68	2.28	0.85	867	2.50	2.12	0.85	910	2.41	2.04	0.85	935
31	22	2.83	2.07	0.73	901	2.65	1.94	0.73	952	2.56	1.87	0.73	969
31	24	2.99	1.82	0.61	935	2.81	1.71	0.61	978	2.73	1.67	0.61	999
31	26	3.15	1.54	0.49	969	2.96	1.45	0.49	1012	2.87	1.41	0.49	1033
32	18	2.55	2.57	1.01	833	2.34	2.36	1.01	884	2.25	2.27	1.01	901
32	20	2.68	2.38	0.89	867	2.50	2.22	0.89	910	2.41	2.14	0.89	935
32	22	2.83	2.18	0.77	901	2.65	2.04	0.77	952	2.56	1.97	0.77	969
32	24	2.99	1.94	0.65	935	2.81	1.83	0.65	978	2.73	1.77	0.65	999
32	26	3.15	1.67	0.53	969	2.96	1.57	0.53	1012	2.87	1.52	0.53	1033

NOTE Q :Total capacity (kW) SHF :Sensible heat factor DB :Dry-bulb temperature
SHC :Sensible heat capacity (kW) INPUT :Total power input (W) WB :Wet-bulb temperature

PERFORMANCE DATA
COOL operation (230V)

MSC-A09WV -E1 (Single : Room B) : MUX-A20WV -E1

CAPACITY : 2.9(kW) SHF : 0.71 INPUT : 1110(W)

		OUTDOOR DB(℃)															
INDOOR DB(℃)	INDOOR WB(℃)	21				25				27				30			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	3.41	1.82	0.53	888	3.26	1.74	0.53	932	3.13	1.67	0.53	977	3.02	1.61	0.53	1021
21	20	3.55	1.47	0.41	932	3.41	1.41	0.41	988	3.31	1.37	0.41	1010	3.19	1.32	0.41	1055
22	18	3.41	1.95	0.57	888	3.26	1.87	0.57	932	3.13	1.79	0.57	977	3.02	1.73	0.57	1021
22	20	3.55	1.61	0.45	932	3.41	1.54	0.45	988	3.31	1.50	0.45	1010	3.19	1.45	0.45	1055
22	22	3.70	1.23	0.33	966	3.57	1.19	0.33	1027	3.48	1.16	0.33	1055	3.34	1.11	0.33	1099
23	18	3.41	2.09	0.61	888	3.26	2.00	0.61	932	3.13	1.92	0.61	977	3.02	1.85	0.61	1021
23	20	3.55	1.75	0.49	932	3.41	1.68	0.49	988	3.31	1.63	0.49	1010	3.19	1.57	0.49	1055
23	22	3.70	1.38	0.37	966	3.57	1.33	0.37	1027	3.48	1.30	0.37	1055	3.34	1.24	0.37	1099
24	18	3.41	2.23	0.65	888	3.26	2.13	0.65	932	3.13	2.05	0.65	977	3.02	1.97	0.65	1021
24	20	3.55	1.89	0.53	932	3.41	1.82	0.53	988	3.31	1.76	0.53	1010	3.19	1.70	0.53	1055
24	22	3.70	1.53	0.41	966	3.57	1.47	0.41	1027	3.48	1.44	0.41	1055	3.34	1.38	0.41	1099
24	24	3.89	1.14	0.29	1010	3.74	1.10	0.29	1066	3.65	1.07	0.29	1099	3.54	1.04	0.29	1154
25	18	3.41	2.36	0.69	888	3.26	2.26	0.69	932	3.13	2.17	0.69	977	3.02	2.09	0.69	1021
25	20	3.55	2.04	0.57	932	3.41	1.95	0.57	988	3.31	1.89	0.57	1010	3.19	1.83	0.57	1055
25	22	3.70	1.67	0.45	966	3.57	1.62	0.45	1027	3.48	1.58	0.45	1055	3.34	1.51	0.45	1099
25	24	3.89	1.29	0.33	1010	3.74	1.25	0.33	1066	3.65	1.22	0.33	1099	3.54	1.18	0.33	1154
26	18	3.41	2.50	0.73	888	3.26	2.39	0.73	932	3.13	2.30	0.73	977	3.02	2.21	0.73	1021
26	20	3.55	2.18	0.61	932	3.41	2.09	0.61	988	3.31	2.03	0.61	1010	3.19	1.96	0.61	1055
26	22	3.70	1.82	0.49	966	3.57	1.76	0.49	1027	3.48	1.72	0.49	1055	3.34	1.64	0.49	1099
26	24	3.89	1.45	0.37	1010	3.74	1.40	0.37	1066	3.65	1.36	0.37	1099	3.54	1.32	0.37	1154
26	26	4.00	1.01	0.25	1066	3.89	0.98	0.25	1121	3.83	0.97	0.25	1154	3.71	0.94	0.25	1188
27	18	3.41	2.63	0.77	888	3.26	2.52	0.77	932	3.13	2.42	0.77	977	3.02	2.33	0.77	1021
27	20	3.55	2.32	0.65	932	3.41	2.23	0.65	988	3.31	2.16	0.65	1010	3.19	2.08	0.65	1055
27	22	3.70	1.97	0.53	966	3.57	1.90	0.53	1027	3.48	1.85	0.53	1055	3.34	1.78	0.53	1099
27	24	3.89	1.60	0.41	1010	3.74	1.55	0.41	1066	3.65	1.51	0.41	1099	3.54	1.46	0.41	1154
27	26	4.00	1.17	0.29	1066	3.89	1.14	0.29	1121	3.83	1.12	0.29	1154	3.71	1.09	0.29	1188
28	18	3.41	2.77	0.81	888	3.26	2.65	0.81	932	3.13	2.55	0.81	977	3.02	2.45	0.81	1021
28	20	3.55	2.46	0.69	932	3.41	2.36	0.69	988	3.31	2.29	0.69	1010	3.19	2.21	0.69	1055
28	22	3.70	2.12	0.57	966	3.57	2.04	0.57	1027	3.48	1.99	0.57	1055	3.34	1.91	0.57	1099
28	24	3.89	1.76	0.45	1010	3.74	1.69	0.45	1066	3.65	1.66	0.45	1099	3.54	1.60	0.45	1154
28	26	4.00	1.33	0.33	1066	3.89	1.29	0.33	1121	3.83	1.27	0.33	1154	3.71	1.24	0.33	1188
29	18	3.41	2.91	0.85	888	3.26	2.78	0.85	932	3.13	2.67	0.85	977	3.02	2.57	0.85	1021
29	20	3.55	2.60	0.73	932	3.41	2.50	0.73	988	3.31	2.42	0.73	1010	3.19	2.34	0.73	1055
29	22	3.70	2.27	0.61	966	3.57	2.19	0.61	1027	3.48	2.13	0.61	1055	3.34	2.04	0.61	1099
29	24	3.89	1.92	0.49	1010	3.74	1.84	0.49	1066	3.65	1.80	0.49	1099	3.54	1.74	0.49	1154
29	26	4.00	1.49	0.37	1066	3.89	1.45	0.37	1121	3.83	1.43	0.37	1154	3.71	1.38	0.37	1188
30	18	3.41	3.04	0.89	888	3.26	2.91	0.89	932	3.13	2.80	0.89	977	3.02	2.69	0.89	1021
30	20	3.55	2.75	0.77	932	3.41	2.63	0.77	988	3.31	2.56	0.77	1010	3.19	2.47	0.77	1055
30	22	3.70	2.41	0.65	966	3.57	2.33	0.65	1027	3.48	2.27	0.65	1055	3.34	2.18	0.65	1099
30	24	3.89	2.07	0.53	1010	3.74	1.99	0.53	1066	3.65	1.95	0.53	1099	3.54	1.89	0.53	1154
30	26	4.00	1.65	0.41	1066	3.89	1.60	0.41	1121	3.83	1.58	0.41	1154	3.71	1.53	0.41	1188
31	18	3.41	3.18	0.93	888	3.26	3.04	0.93	932	3.13	2.92	0.93	977	3.02	2.81	0.93	1021
31	20	3.55	2.89	0.81	932	3.41	2.77	0.81	988	3.31	2.69	0.81	1010	3.19	2.59	0.81	1055
31	22	3.70	2.56	0.69	966	3.57	2.47	0.69	1027	3.48	2.41	0.69	1055	3.34	2.31	0.69	1099
31	24	3.89	2.23	0.57	1010	3.74	2.14	0.57	1066	3.65	2.09	0.57	1099	3.54	2.03	0.57	1154
31	26	4.00	1.81	0.45	1066	3.89	1.76	0.45	1121	3.83	1.73	0.45	1154	3.71	1.68	0.45	1188
32	18	3.41	3.32	0.97	888	3.26	3.17	0.97	932	3.13	3.05	0.97	977	3.02	2.93	0.97	1021
32	20	3.55	3.03	0.85	932	3.41	2.91	0.85	988	3.31	2.82	0.85	1010	3.19	2.72	0.85	1055
32	22	3.70	2.71	0.73	966	3.57	2.61	0.73	1027	3.48	2.55	0.73	1055	3.34	2.44	0.73	1099
32	24	3.89	2.38	0.61	1010	3.74	2.29	0.61	1066	3.65	2.24	0.61	1099	3.54	2.17	0.61	1154
32	26	4.00	1.97	0.49	1066	3.89	1.92	0.49	1121	3.83	1.89	0.49	1154	3.71	1.83	0.49	1188

NOTE Q :Total capacity (kW) SHF :Sensible heat factor DB :Dry-bulb temperature
SHC :Sensible heat capacity (kW) INPUT :Total power input (W) WB :Wet-bulb temperature

PERFORMANCE DATA
COOL operation (230V)

MSC-A09WV -E1 (Single : Room B) : MUX-A20WV -E1

CAPACITY : 2.9(kW) SHF : 0.71 INPUT : 1110(W)

		OUTDOOR DB(℃)											
INDOOR DB(℃)	INDOOR WB(℃)	35				40				43			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	2.84	1.51	0.53	1088	2.61	1.39	0.53	1154	2.51	1.34	0.53	1177
21	20	2.99	1.23	0.41	1132	2.78	1.15	0.41	1188	2.68	1.11	0.41	1221
22	18	2.84	1.63	0.57	1088	2.61	1.50	0.57	1154	2.51	1.44	0.57	1177
22	20	2.99	1.35	0.45	1132	2.78	1.26	0.45	1188	2.68	1.22	0.45	1221
22	22	3.16	1.05	0.33	1177	2.96	0.99	0.33	1243	2.86	0.95	0.33	1265
23	18	2.84	1.74	0.61	1088	2.61	1.60	0.61	1154	2.51	1.54	0.61	1177
23	20	2.99	1.47	0.49	1132	2.78	1.37	0.49	1188	2.68	1.32	0.49	1221
23	22	3.16	1.18	0.37	1177	2.96	1.10	0.37	1243	2.86	1.07	0.37	1265
24	18	2.84	1.86	0.65	1088	2.61	1.70	0.65	1154	2.51	1.64	0.65	1177
24	20	2.99	1.59	0.53	1132	2.78	1.48	0.53	1188	2.68	1.43	0.53	1221
24	22	3.16	1.31	0.41	1177	2.96	1.22	0.41	1243	2.86	1.18	0.41	1265
24	24	3.34	0.98	0.29	1221	3.13	0.92	0.29	1277	3.05	0.89	0.29	1304
25	18	2.84	1.97	0.69	1088	2.61	1.81	0.69	1154	2.51	1.74	0.69	1177
25	20	2.99	1.71	0.57	1132	2.78	1.60	0.57	1188	2.68	1.54	0.57	1221
25	22	3.16	1.43	0.45	1177	2.96	1.34	0.45	1243	2.86	1.29	0.45	1265
25	24	3.34	1.11	0.33	1221	3.13	1.04	0.33	1277	3.05	1.01	0.33	1304
26	18	2.84	2.08	0.73	1088	2.61	1.91	0.73	1154	2.51	1.84	0.73	1177
26	20	2.99	1.83	0.61	1132	2.78	1.71	0.61	1188	2.68	1.64	0.61	1221
26	22	3.16	1.56	0.49	1177	2.96	1.46	0.49	1243	2.86	1.41	0.49	1265
26	24	3.34	1.24	0.37	1221	3.13	1.17	0.37	1277	3.05	1.14	0.37	1304
26	26	3.51	0.89	0.25	1265	3.31	0.84	0.25	1321	3.20	0.81	0.25	1349
27	18	2.84	2.20	0.77	1088	2.61	2.02	0.77	1154	2.51	1.94	0.77	1177
27	20	2.99	1.95	0.65	1132	2.78	1.82	0.65	1188	2.68	1.75	0.65	1221
27	22	3.16	1.68	0.53	1177	2.96	1.58	0.53	1243	2.86	1.52	0.53	1265
27	24	3.34	1.38	0.41	1221	3.13	1.29	0.41	1277	3.05	1.26	0.41	1304
27	26	3.51	1.03	0.29	1265	3.31	0.97	0.29	1321	3.20	0.94	0.29	1349
28	18	2.84	2.31	0.81	1088	2.61	2.12	0.81	1154	2.51	2.04	0.81	1177
28	20	2.99	2.07	0.69	1132	2.78	1.93	0.69	1188	2.68	1.86	0.69	1221
28	22	3.16	1.81	0.57	1177	2.96	1.69	0.57	1243	2.86	1.64	0.57	1265
28	24	3.34	1.51	0.45	1221	3.13	1.42	0.45	1277	3.05	1.38	0.45	1304
28	26	3.51	1.17	0.33	1265	3.31	1.10	0.33	1321	3.20	1.07	0.33	1349
29	18	2.84	2.42	0.85	1088	2.61	2.23	0.85	1154	2.51	2.14	0.85	1177
29	20	2.99	2.19	0.73	1132	2.78	2.04	0.73	1188	2.68	1.97	0.73	1221
29	22	3.16	1.94	0.61	1177	2.96	1.81	0.61	1243	2.86	1.75	0.61	1265
29	24	3.34	1.64	0.49	1221	3.13	1.54	0.49	1277	3.05	1.50	0.49	1304
29	26	3.51	1.31	0.37	1265	3.31	1.23	0.37	1321	3.20	1.20	0.37	1349
30	18	2.84	2.54	0.89	1088	2.61	2.33	0.89	1154	2.51	2.24	0.89	1177
30	20	2.99	2.31	0.77	1132	2.78	2.15	0.77	1188	2.68	2.07	0.77	1221
30	22	3.16	2.06	0.65	1177	2.96	1.93	0.65	1243	2.86	1.87	0.65	1265
30	24	3.34	1.78	0.53	1221	3.13	1.67	0.53	1277	3.05	1.62	0.53	1304
30	26	3.51	1.45	0.41	1265	3.31	1.37	0.41	1321	3.20	1.32	0.41	1349
31	18	2.84	2.65	0.93	1088	2.61	2.44	0.93	1154	2.51	2.34	0.93	1177
31	20	2.99	2.43	0.81	1132	2.78	2.26	0.81	1188	2.68	2.18	0.81	1221
31	22	3.16	2.19	0.69	1177	2.96	2.05	0.69	1243	2.86	1.98	0.69	1265
31	24	3.34	1.91	0.57	1221	3.13	1.79	0.57	1277	3.05	1.74	0.57	1304
31	26	3.51	1.59	0.45	1265	3.31	1.50	0.45	1321	3.20	1.45	0.45	1349
32	18	2.84	2.77	0.97	1088	2.61	2.54	0.97	1154	2.51	2.44	0.97	1177
32	20	2.99	2.55	0.85	1132	2.78	2.37	0.85	1188	2.68	2.29	0.85	1221
32	22	3.16	2.32	0.73	1177	2.96	2.17	0.73	1243	2.86	2.09	0.73	1265
32	24	3.34	2.04	0.61	1221	3.13	1.92	0.61	1277	3.05	1.87	0.61	1304
32	26	3.51	1.73	0.49	1265	3.31	1.63	0.49	1321	3.20	1.58	0.49	1349

NOTE Q :Total capacity (kW) SHF :Sensible heat factor DB :Dry-bulb temperature
SHC :Sensible heat capacity (kW) INPUT :Total power input (W) WB :Wet-bulb temperature

PERFORMANCE DATA
COOL operation (230V)

MSC-A12WV -E1(Single) : MUX-A25WV -E1

CAPACITY : 3.5(kW) SHF : 0.73 INPUT : 1340(W)

		OUTDOOR DB(℃)															
INDOOR DB(℃)	INDOOR WB(℃)	21				25				27				30			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	4.11	2.25	0.55	1072	3.94	2.15	0.55	1126	3.78	2.07	0.55	1179	3.64	1.99	0.55	1233
21	20	4.29	1.83	0.43	1126	4.11	1.76	0.43	1193	3.99	1.70	0.43	1219	3.85	1.64	0.43	1273
22	18	4.11	2.41	0.59	1072	3.94	2.31	0.59	1126	3.78	2.22	0.59	1179	3.64	2.14	0.59	1233
22	20	4.29	2.00	0.47	1126	4.11	1.92	0.47	1193	3.99	1.86	0.47	1219	3.85	1.80	0.47	1273
22	22	4.46	1.55	0.35	1166	4.31	1.49	0.35	1240	4.20	1.46	0.35	1273	4.03	1.40	0.35	1327
23	18	4.11	2.58	0.63	1072	3.94	2.47	0.63	1126	3.78	2.37	0.63	1179	3.64	2.28	0.63	1233
23	20	4.29	2.17	0.51	1126	4.11	2.09	0.51	1193	3.99	2.02	0.51	1219	3.85	1.95	0.51	1273
23	22	4.46	1.73	0.39	1166	4.31	1.67	0.39	1240	4.20	1.63	0.39	1273	4.03	1.56	0.39	1327
24	18	4.11	2.74	0.67	1072	3.94	2.63	0.67	1126	3.78	2.52	0.67	1179	3.64	2.43	0.67	1233
24	20	4.29	2.35	0.55	1126	4.11	2.25	0.55	1193	3.99	2.18	0.55	1219	3.85	2.11	0.55	1273
24	22	4.46	1.91	0.43	1166	4.31	1.84	0.43	1240	4.20	1.79	0.43	1273	4.03	1.72	0.43	1327
24	24	4.69	1.44	0.31	1219	4.52	1.39	0.31	1286	4.41	1.35	0.31	1327	4.27	1.31	0.31	1394
25	18	4.11	2.91	0.71	1072	3.94	2.78	0.71	1126	3.78	2.67	0.71	1179	3.64	2.57	0.71	1233
25	20	4.29	2.52	0.59	1126	4.11	2.41	0.59	1193	3.99	2.34	0.59	1219	3.85	2.26	0.59	1273
25	22	4.46	2.08	0.47	1166	4.31	2.01	0.47	1240	4.20	1.96	0.47	1273	4.03	1.88	0.47	1327
25	24	4.69	1.63	0.35	1219	4.52	1.57	0.35	1286	4.41	1.53	0.35	1327	4.27	1.48	0.35	1394
26	18	4.11	3.07	0.75	1072	3.94	2.94	0.75	1126	3.78	2.82	0.75	1179	3.64	2.72	0.75	1233
26	20	4.29	2.69	0.63	1126	4.11	2.58	0.63	1193	3.99	2.50	0.63	1219	3.85	2.41	0.63	1273
26	22	4.46	2.26	0.51	1166	4.31	2.18	0.51	1240	4.20	2.13	0.51	1273	4.03	2.04	0.51	1327
26	24	4.69	1.82	0.39	1219	4.52	1.75	0.39	1286	4.41	1.71	0.39	1327	4.27	1.65	0.39	1394
26	26	4.83	1.29	0.27	1286	4.69	1.25	0.27	1353	4.62	1.23	0.27	1394	4.48	1.20	0.27	1434
27	18	4.11	3.24	0.79	1072	3.94	3.10	0.79	1126	3.78	2.97	0.79	1179	3.64	2.86	0.79	1233
27	20	4.29	2.86	0.67	1126	4.11	2.74	0.67	1193	3.99	2.66	0.67	1219	3.85	2.57	0.67	1273
27	22	4.46	2.44	0.55	1166	4.31	2.35	0.55	1240	4.20	2.30	0.55	1273	4.03	2.20	0.55	1327
27	24	4.69	2.00	0.43	1219	4.52	1.93	0.43	1286	4.41	1.88	0.43	1327	4.27	1.82	0.43	1394
27	26	4.83	1.48	0.31	1286	4.69	1.44	0.31	1353	4.62	1.42	0.31	1394	4.48	1.38	0.31	1434
28	18	4.11	3.40	0.83	1072	3.94	3.26	0.83	1126	3.78	3.13	0.83	1179	3.64	3.01	0.83	1233
28	20	4.29	3.03	0.71	1126	4.11	2.91	0.71	1193	3.99	2.82	0.71	1219	3.85	2.72	0.71	1273
28	22	4.46	2.62	0.59	1166	4.31	2.53	0.59	1240	4.20	2.47	0.59	1273	4.03	2.36	0.59	1327
28	24	4.69	2.19	0.47	1219	4.52	2.11	0.47	1286	4.41	2.06	0.47	1327	4.27	1.99	0.47	1394
28	26	4.83	1.68	0.35	1286	4.69	1.63	0.35	1353	4.62	1.60	0.35	1394	4.48	1.55	0.35	1434
29	18	4.11	3.57	0.87	1072	3.94	3.41	0.87	1126	3.78	3.28	0.87	1179	3.64	3.16	0.87	1233
29	20	4.29	3.20	0.75	1126	4.11	3.07	0.75	1193	3.99	2.98	0.75	1219	3.85	2.88	0.75	1273
29	22	4.46	2.80	0.63	1166	4.31	2.70	0.63	1240	4.20	2.63	0.63	1273	4.03	2.52	0.63	1327
29	24	4.69	2.38	0.51	1219	4.52	2.29	0.51	1286	4.41	2.24	0.51	1327	4.27	2.16	0.51	1394
29	26	4.83	1.87	0.39	1286	4.69	1.82	0.39	1353	4.62	1.79	0.39	1394	4.48	1.73	0.39	1434
30	18	4.11	3.73	0.91	1072	3.94	3.57	0.91	1126	3.78	3.43	0.91	1179	3.64	3.30	0.91	1233
30	20	4.29	3.37	0.79	1126	4.11	3.24	0.79	1193	3.99	3.14	0.79	1219	3.85	3.03	0.79	1273
30	22	4.46	2.98	0.67	1166	4.31	2.87	0.67	1240	4.20	2.80	0.67	1273	4.03	2.68	0.67	1327
30	24	4.69	2.57	0.55	1219	4.52	2.47	0.55	1286	4.41	2.41	0.55	1327	4.27	2.34	0.55	1394
30	26	4.83	2.06	0.43	1286	4.69	2.00	0.43	1353	4.62	1.97	0.43	1394	4.48	1.91	0.43	1434
31	18	4.11	3.89	0.95	1072	3.94	3.73	0.95	1126	3.78	3.58	0.95	1179	3.64	3.45	0.95	1233
31	20	4.29	3.55	0.83	1126	4.11	3.40	0.83	1193	3.99	3.30	0.83	1219	3.85	3.18	0.83	1273
31	22	4.46	3.15	0.71	1166	4.31	3.04	0.71	1240	4.20	2.97	0.71	1273	4.03	2.85	0.71	1327
31	24	4.69	2.75	0.59	1219	4.52	2.65	0.59	1286	4.41	2.59	0.59	1327	4.27	2.51	0.59	1394
31	26	4.83	2.26	0.47	1286	4.69	2.19	0.47	1353	4.62	2.16	0.47	1394	4.48	2.09	0.47	1434
32	18	4.11	4.06	0.99	1072	3.94	3.89	0.99	1126	3.78	3.73	0.99	1179	3.64	3.59	0.99	1233
32	20	4.29	3.72	0.87	1126	4.11	3.57	0.87	1193	3.99	3.46	0.87	1219	3.85	3.34	0.87	1273
32	22	4.46	3.33	0.75	1166	4.31	3.22	0.75	1240	4.20	3.14	0.75	1273	4.03	3.01	0.75	1327
32	24	4.69	2.94	0.63	1219	4.52	2.83	0.63	1286	4.41	2.77	0.63	1327	4.27	2.68	0.63	1394
32	26	4.83	2.45	0.51	1286	4.69	2.38	0.51	1353	4.62	2.34	0.51	1394	4.48	2.27	0.51	1434

NOTE Q :Total capacity (kW) SHF :Sensible heat factor DB :Dry-bulb temperature
SHC :Sensible heat capacity (kW) INPUT :Total power input (W) WB :Wet-bulb temperature

PERFORMANCE DATA
COOL operation (230V)

MSC-A12WV -E1(Single) : MUX-A25WV -E1

CAPACITY : 3.5(kW) SHF : 0.73 INPUT : 1340(W)

		OUTDOOR DB(℃)											
INDOOR DB(℃)	INDOOR WB(℃)	35				40				43			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	3.43	1.88	0.55	1313	3.15	1.72	0.55	1394	3.03	1.66	0.55	1420
21	20	3.61	1.54	0.43	1367	3.36	1.43	0.43	1434	3.24	1.38	0.43	1474
22	18	3.43	2.01	0.59	1313	3.15	1.85	0.59	1394	3.03	1.78	0.59	1420
22	20	3.61	1.68	0.47	1367	3.36	1.57	0.47	1434	3.24	1.51	0.47	1474
22	22	3.82	1.32	0.35	1420	3.57	1.24	0.35	1501	3.45	1.20	0.35	1528
23	18	3.43	2.15	0.63	1313	3.15	1.98	0.63	1394	3.03	1.90	0.63	1420
23	20	3.61	1.83	0.51	1367	3.36	1.70	0.51	1434	3.24	1.64	0.51	1474
23	22	3.82	1.48	0.39	1420	3.57	1.38	0.39	1501	3.45	1.33	0.39	1528
24	18	3.43	2.29	0.67	1313	3.15	2.10	0.67	1394	3.03	2.02	0.67	1420
24	20	3.61	1.97	0.55	1367	3.36	1.84	0.55	1434	3.24	1.77	0.55	1474
24	22	3.82	1.63	0.43	1420	3.57	1.52	0.43	1501	3.45	1.47	0.43	1528
24	24	4.03	1.24	0.31	1474	3.78	1.16	0.31	1541	3.68	1.13	0.31	1575
25	18	3.43	2.43	0.71	1313	3.15	2.23	0.71	1394	3.03	2.14	0.71	1420
25	20	3.61	2.12	0.59	1367	3.36	1.97	0.59	1434	3.24	1.90	0.59	1474
25	22	3.82	1.78	0.47	1420	3.57	1.67	0.47	1501	3.45	1.61	0.47	1528
25	24	4.03	1.40	0.35	1474	3.78	1.31	0.35	1541	3.68	1.28	0.35	1575
26	18	3.43	2.56	0.75	1313	3.15	2.35	0.75	1394	3.03	2.26	0.75	1420
26	20	3.61	2.26	0.63	1367	3.36	2.11	0.63	1434	3.24	2.03	0.63	1474
26	22	3.82	1.93	0.51	1420	3.57	1.81	0.51	1501	3.45	1.75	0.51	1528
26	24	4.03	1.56	0.39	1474	3.78	1.46	0.39	1541	3.68	1.42	0.39	1575
26	26	4.24	1.13	0.27	1528	3.99	1.07	0.27	1595	3.87	1.03	0.27	1628
27	18	3.43	2.70	0.79	1313	3.15	2.48	0.79	1394	3.03	2.38	0.79	1420
27	20	3.61	2.40	0.67	1367	3.36	2.24	0.67	1434	3.24	2.16	0.67	1474
27	22	3.82	2.09	0.55	1420	3.57	1.95	0.55	1501	3.45	1.89	0.55	1528
27	24	4.03	1.72	0.43	1474	3.78	1.61	0.43	1541	3.68	1.57	0.43	1575
27	26	4.24	1.30	0.31	1528	3.99	1.22	0.31	1595	3.87	1.19	0.31	1628
28	18	3.43	2.84	0.83	1313	3.15	2.61	0.83	1394	3.03	2.50	0.83	1420
28	20	3.61	2.55	0.71	1367	3.36	2.38	0.71	1434	3.24	2.29	0.71	1474
28	22	3.82	2.24	0.59	1420	3.57	2.10	0.59	1501	3.45	2.02	0.59	1528
28	24	4.03	1.88	0.47	1474	3.78	1.77	0.47	1541	3.68	1.72	0.47	1575
28	26	4.24	1.47	0.35	1528	3.99	1.38	0.35	1595	3.87	1.34	0.35	1628
29	18	3.43	2.97	0.87	1313	3.15	2.73	0.87	1394	3.03	2.62	0.87	1420
29	20	3.61	2.69	0.75	1367	3.36	2.51	0.75	1434	3.24	2.42	0.75	1474
29	22	3.82	2.39	0.63	1420	3.57	2.24	0.63	1501	3.45	2.16	0.63	1528
29	24	4.03	2.04	0.51	1474	3.78	1.92	0.51	1541	3.68	1.86	0.51	1575
29	26	4.24	1.64	0.39	1528	3.99	1.54	0.39	1595	3.87	1.50	0.39	1628
30	18	3.43	3.11	0.91	1313	3.15	2.86	0.91	1394	3.03	2.75	0.91	1420
30	20	3.61	2.84	0.79	1367	3.36	2.64	0.79	1434	3.24	2.55	0.79	1474
30	22	3.82	2.54	0.67	1420	3.57	2.38	0.67	1501	3.45	2.30	0.67	1528
30	24	4.03	2.20	0.55	1474	3.78	2.07	0.55	1541	3.68	2.01	0.55	1575
30	26	4.24	1.81	0.43	1528	3.99	1.70	0.43	1595	3.87	1.65	0.43	1628
31	18	3.43	3.25	0.95	1313	3.15	2.98	0.95	1394	3.03	2.87	0.95	1420
31	20	3.61	2.98	0.83	1367	3.36	2.78	0.83	1434	3.24	2.68	0.83	1474
31	22	3.82	2.70	0.71	1420	3.57	2.52	0.71	1501	3.45	2.44	0.71	1528
31	24	4.03	2.36	0.59	1474	3.78	2.22	0.59	1541	3.68	2.16	0.59	1575
31	26	4.24	1.98	0.47	1528	3.99	1.86	0.47	1595	3.87	1.81	0.47	1628
32	18	3.43	3.39	0.99	1313	3.15	3.11	0.99	1394	3.03	2.99	0.99	1420
32	20	3.61	3.13	0.87	1367	3.36	2.91	0.87	1434	3.24	2.81	0.87	1474
32	22	3.82	2.85	0.75	1420	3.57	2.67	0.75	1501	3.45	2.58	0.75	1528
32	24	4.03	2.52	0.63	1474	3.78	2.37	0.63	1541	3.68	2.30	0.63	1575
32	26	4.24	2.15	0.51	1528	3.99	2.02	0.51	1595	3.87	1.96	0.51	1628

NOTE Q :Total capacity (kW) SHF :Sensible heat factor DB :Dry-bulb temperature
SHC :Sensible heat capacity (kW) INPUT :Total power input (W) WB :Wet-bulb temperature

PERFORMANCE DATA
COOL operation (230V)

MSC-A09WV -E1 (Single : Room C) : MUX-A26WV -E1

CAPACITY : 2.75(kW) SHF :0.73 INPUT : 1050(W)

		OUTDOOR DB(℃)															
INDOOR DB(℃)	INDOOR WB(℃)	21				25				27				30			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	3.23	1.76	0.55	840	3.09	1.69	0.55	882	2.97	1.62	0.55	924	2.86	1.56	0.55	966
21	20	3.37	1.43	0.43	882	3.23	1.37	0.43	935	3.14	1.33	0.43	956	3.03	1.29	0.43	998
22	18	3.23	1.89	0.59	840	3.09	1.81	0.59	882	2.97	1.74	0.59	924	2.86	1.67	0.59	966
22	20	3.37	1.57	0.47	882	3.23	1.50	0.47	935	3.14	1.46	0.47	956	3.03	1.41	0.47	998
22	22	3.51	1.21	0.35	914	3.38	1.17	0.35	971	3.30	1.14	0.35	998	3.16	1.09	0.35	1040
23	18	3.23	2.02	0.63	840	3.09	1.93	0.63	882	2.97	1.86	0.63	924	2.86	1.79	0.63	966
23	20	3.37	1.70	0.51	882	3.23	1.63	0.51	935	3.14	1.58	0.51	956	3.03	1.53	0.51	998
23	22	3.51	1.35	0.39	914	3.38	1.30	0.39	971	3.30	1.27	0.39	998	3.16	1.22	0.39	1040
24	18	3.23	2.15	0.67	840	3.09	2.06	0.67	882	2.97	1.98	0.67	924	2.86	1.90	0.67	966
24	20	3.37	1.84	0.55	882	3.23	1.76	0.55	935	3.14	1.71	0.55	956	3.03	1.65	0.55	998
24	22	3.51	1.49	0.43	914	3.38	1.44	0.43	971	3.30	1.40	0.43	998	3.16	1.34	0.43	1040
24	24	3.69	1.12	0.31	956	3.55	1.08	0.31	1008	3.47	1.06	0.31	1040	3.36	1.02	0.31	1092
25	18	3.23	2.28	0.71	840	3.09	2.18	0.71	882	2.97	2.09	0.71	924	2.86	2.02	0.71	966
25	20	3.37	1.97	0.59	882	3.23	1.89	0.59	935	3.14	1.83	0.59	956	3.03	1.77	0.59	998
25	22	3.51	1.63	0.47	914	3.38	1.57	0.47	971	3.30	1.53	0.47	998	3.16	1.47	0.47	1040
25	24	3.69	1.27	0.35	956	3.55	1.22	0.35	1008	3.47	1.20	0.35	1040	3.36	1.16	0.35	1092
26	18	3.23	2.41	0.75	840	3.09	2.30	0.75	882	2.97	2.21	0.75	924	2.86	2.13	0.75	966
26	20	3.37	2.11	0.63	882	3.23	2.02	0.63	935	3.14	1.96	0.63	956	3.03	1.89	0.63	998
26	22	3.51	1.77	0.51	914	3.38	1.71	0.51	971	3.30	1.67	0.51	998	3.16	1.60	0.51	1040
26	24	3.69	1.42	0.39	956	3.55	1.37	0.39	1008	3.47	1.33	0.39	1040	3.36	1.29	0.39	1092
26	26	3.80	1.01	0.27	1008	3.69	0.98	0.27	1061	3.63	0.96	0.27	1092	3.52	0.93	0.27	1124
27	18	3.23	2.54	0.79	840	3.09	2.43	0.79	882	2.97	2.33	0.79	924	2.86	2.25	0.79	966
27	20	3.37	2.24	0.67	882	3.23	2.15	0.67	935	3.14	2.08	0.67	956	3.03	2.01	0.67	998
27	22	3.51	1.91	0.55	914	3.38	1.84	0.55	971	3.30	1.80	0.55	998	3.16	1.72	0.55	1040
27	24	3.69	1.57	0.43	956	3.55	1.51	0.43	1008	3.47	1.47	0.43	1040	3.36	1.43	0.43	1092
27	26	3.80	1.16	0.31	1008	3.69	1.12	0.31	1061	3.63	1.11	0.31	1092	3.52	1.07	0.31	1124
28	18	3.23	2.67	0.83	840	3.09	2.55	0.83	882	2.97	2.45	0.83	924	2.86	2.36	0.83	966
28	20	3.37	2.37	0.71	882	3.23	2.28	0.71	935	3.14	2.21	0.71	956	3.03	2.13	0.71	998
28	22	3.51	2.05	0.59	914	3.38	1.98	0.59	971	3.30	1.93	0.59	998	3.16	1.85	0.59	1040
28	24	3.69	1.71	0.47	956	3.55	1.65	0.47	1008	3.47	1.61	0.47	1040	3.36	1.56	0.47	1092
28	26	3.80	1.31	0.35	1008	3.69	1.27	0.35	1061	3.63	1.25	0.35	1092	3.52	1.21	0.35	1124
29	18	3.23	2.80	0.87	840	3.09	2.68	0.87	882	2.97	2.57	0.87	924	2.86	2.47	0.87	966
29	20	3.37	2.51	0.75	882	3.23	2.41	0.75	935	3.14	2.34	0.75	956	3.03	2.25	0.75	998
29	22	3.51	2.19	0.63	914	3.38	2.11	0.63	971	3.30	2.06	0.63	998	3.16	1.98	0.63	1040
29	24	3.69	1.86	0.51	956	3.55	1.79	0.51	1008	3.47	1.75	0.51	1040	3.36	1.69	0.51	1092
29	26	3.80	1.46	0.39	1008	3.69	1.42	0.39	1061	3.63	1.40	0.39	1092	3.52	1.36	0.39	1124
30	18	3.23	2.92	0.91	840	3.09	2.80	0.91	882	2.97	2.69	0.91	924	2.86	2.59	0.91	966
30	20	3.37	2.64	0.79	882	3.23	2.54	0.79	935	3.14	2.46	0.79	956	3.03	2.37	0.79	998
30	22	3.51	2.33	0.67	914	3.38	2.25	0.67	971	3.30	2.19	0.67	998	3.16	2.10	0.67	1040
30	24	3.69	2.01	0.55	956	3.55	1.93	0.55	1008	3.47	1.89	0.55	1040	3.36	1.83	0.55	1092
30	26	3.80	1.61	0.43	1008	3.69	1.57	0.43	1061	3.63	1.54	0.43	1092	3.52	1.50	0.43	1124
31	18	3.23	3.05	0.95	840	3.09	2.92	0.95	882	2.97	2.81	0.95	924	2.86	2.70	0.95	966
31	20	3.37	2.78	0.83	882	3.23	2.67	0.83	935	3.14	2.59	0.83	956	3.03	2.50	0.83	998
31	22	3.51	2.47	0.71	914	3.38	2.38	0.71	971	3.30	2.33	0.71	998	3.16	2.23	0.71	1040
31	24	3.69	2.16	0.59	956	3.55	2.08	0.59	1008	3.47	2.03	0.59	1040	3.36	1.96	0.59	1092
31	26	3.80	1.76	0.47	1008	3.69	1.71	0.47	1061	3.63	1.69	0.47	1092	3.52	1.64	0.47	1124
32	18	3.23	3.18	0.99	840	3.09	3.05	0.99	882	2.97	2.93	0.99	924	2.86	2.82	0.99	966
32	20	3.37	2.91	0.87	882	3.23	2.80	0.87	935	3.14	2.71	0.87	956	3.03	2.62	0.87	998
32	22	3.51	2.61	0.75	914	3.38	2.52	0.75	971	3.30	2.46	0.75	998	3.16	2.36	0.75	1040
32	24	3.69	2.30	0.63	956	3.55	2.22	0.63	1008	3.47	2.17	0.63	1040	3.36	2.10	0.63	1092
32	26	3.80	1.92	0.51	1008	3.69	1.86	0.51	1061	3.63	1.83	0.51	1092	3.52	1.78	0.51	1124

NOTE Q :Total capacity (kW) SHF :Sensible heat factor DB :Dry-bulb temperature
SHC :Sensible heat capacity (kW) INPUT :Total power input (W) WB :Wet-bulb temperature

PERFORMANCE DATA
COOL operation (230V)

MSC-A09WV -E1 (Single : Room C) : MUX-A26WV -E1

CAPACITY : 2.75(kW) SHF : 0.73 INPUT : 1050(W)

		OUTDOOR DB(℃)											
INDOOR DB(℃)	INDOOR WB(℃)	35				40				43			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	2.70	1.47	0.55	1029	2.48	1.35	0.55	1092	2.38	1.30	0.55	1113
21	20	2.83	1.20	0.43	1071	2.64	1.12	0.43	1124	2.54	1.08	0.43	1155
22	18	2.70	1.58	0.59	1029	2.48	1.45	0.59	1092	2.38	1.39	0.59	1113
22	20	2.83	1.32	0.47	1071	2.64	1.23	0.47	1124	2.54	1.18	0.47	1155
22	22	3.00	1.03	0.35	1113	2.81	0.97	0.35	1176	2.71	0.93	0.35	1197
23	18	2.70	1.68	0.63	1029	2.48	1.55	0.63	1092	2.38	1.49	0.63	1113
23	20	2.83	1.43	0.51	1071	2.64	1.33	0.51	1124	2.54	1.28	0.51	1155
23	22	3.00	1.15	0.39	1113	2.81	1.08	0.39	1176	2.71	1.04	0.39	1197
24	18	2.70	1.79	0.67	1029	2.48	1.65	0.67	1092	2.38	1.58	0.67	1113
24	20	2.83	1.54	0.55	1071	2.64	1.44	0.55	1124	2.54	1.39	0.55	1155
24	22	3.00	1.27	0.43	1113	2.81	1.19	0.43	1176	2.71	1.15	0.43	1197
24	24	3.16	0.96	0.31	1155	2.97	0.91	0.31	1208	2.89	0.88	0.31	1234
25	18	2.70	1.90	0.71	1029	2.48	1.74	0.71	1092	2.38	1.68	0.71	1113
25	20	2.83	1.66	0.59	1071	2.64	1.54	0.59	1124	2.54	1.49	0.59	1155
25	22	3.00	1.39	0.47	1113	2.81	1.30	0.47	1176	2.71	1.26	0.47	1197
25	24	3.16	1.09	0.35	1155	2.97	1.02	0.35	1208	2.89	1.00	0.35	1234
26	18	2.70	2.01	0.75	1029	2.48	1.84	0.75	1092	2.38	1.77	0.75	1113
26	20	2.83	1.77	0.63	1071	2.64	1.65	0.63	1124	2.54	1.59	0.63	1155
26	22	3.00	1.51	0.51	1113	2.81	1.42	0.51	1176	2.71	1.37	0.51	1197
26	24	3.16	1.22	0.39	1155	2.97	1.14	0.39	1208	2.89	1.11	0.39	1234
26	26	3.33	0.88	0.27	1197	3.14	0.83	0.27	1250	3.04	0.81	0.27	1276
27	18	2.70	2.12	0.79	1029	2.48	1.94	0.79	1092	2.38	1.87	0.79	1113
27	20	2.83	1.88	0.67	1071	2.64	1.76	0.67	1124	2.54	1.69	0.67	1155
27	22	3.00	1.63	0.55	1113	2.81	1.53	0.55	1176	2.71	1.48	0.55	1197
27	24	3.16	1.34	0.43	1155	2.97	1.26	0.43	1208	2.89	1.23	0.43	1234
27	26	3.33	1.01	0.31	1197	3.14	0.96	0.31	1250	3.04	0.93	0.31	1276
28	18	2.70	2.22	0.83	1029	2.48	2.04	0.83	1092	2.38	1.96	0.83	1113
28	20	2.83	2.00	0.71	1071	2.64	1.86	0.71	1124	2.54	1.79	0.71	1155
28	22	3.00	1.75	0.59	1113	2.81	1.64	0.59	1176	2.71	1.58	0.59	1197
28	24	3.16	1.47	0.47	1155	2.97	1.38	0.47	1208	2.89	1.34	0.47	1234
28	26	3.33	1.15	0.35	1197	3.14	1.08	0.35	1250	3.04	1.05	0.35	1276
29	18	2.70	2.33	0.87	1029	2.48	2.14	0.87	1092	2.38	2.06	0.87	1113
29	20	2.83	2.11	0.75	1071	2.64	1.97	0.75	1124	2.54	1.90	0.75	1155
29	22	3.00	1.87	0.63	1113	2.81	1.75	0.63	1176	2.71	1.69	0.63	1197
29	24	3.16	1.60	0.51	1155	2.97	1.50	0.51	1208	2.89	1.46	0.51	1234
29	26	3.33	1.28	0.39	1197	3.14	1.21	0.39	1250	3.04	1.17	0.39	1276
30	18	2.70	2.44	0.91	1029	2.48	2.24	0.91	1092	2.38	2.15	0.91	1113
30	20	2.83	2.22	0.79	1071	2.64	2.07	0.79	1124	2.54	2.00	0.79	1155
30	22	3.00	1.99	0.67	1113	2.81	1.87	0.67	1176	2.71	1.80	0.67	1197
30	24	3.16	1.72	0.55	1155	2.97	1.62	0.55	1208	2.89	1.57	0.55	1234
30	26	3.33	1.41	0.43	1197	3.14	1.33	0.43	1250	3.04	1.29	0.43	1276
31	18	2.70	2.55	0.95	1029	2.48	2.34	0.95	1092	2.38	2.25	0.95	1113
31	20	2.83	2.34	0.83	1071	2.64	2.18	0.83	1124	2.54	2.10	0.83	1155
31	22	3.00	2.11	0.71	1113	2.81	1.98	0.71	1176	2.71	1.91	0.71	1197
31	24	3.16	1.85	0.59	1155	2.97	1.74	0.59	1208	2.89	1.69	0.59	1234
31	26	3.33	1.55	0.47	1197	3.14	1.46	0.47	1250	3.04	1.41	0.47	1276
32	18	2.70	2.65	0.99	1029	2.48	2.44	0.99	1092	2.38	2.34	0.99	1113
32	20	2.83	2.45	0.87	1071	2.64	2.28	0.87	1124	2.54	2.20	0.87	1155
32	22	3.00	2.23	0.75	1113	2.81	2.09	0.75	1176	2.71	2.02	0.75	1197
32	24	3.16	1.98	0.63	1155	2.97	1.86	0.63	1208	2.89	1.80	0.63	1234
32	26	3.33	1.68	0.51	1197	3.14	1.58	0.51	1250	3.04	1.53	0.51	1276

NOTE Q :Total capacity (kW) SHF :Sensible heat factor DB :Dry-bulb temperature
SHC :Sensible heat capacity (kW) INPUT :Total power input (W) WB :Wet-bulb temperature

PERFORMANCE DATA
COOL operation (230V)

MSC-A12WV -E1 (Single : Room A) : MUX-A26WV -E1

CAPACITY : 3.4(kW) SHF : 0.77 INPUT : 1220(W)

		OUTDOOR DB(℃)															
INDOOR DB(℃)	INDOOR WB(℃)	21				25				27				30			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	4.00	2.37	0.59	976	3.83	2.27	0.59	1025	3.67	2.18	0.59	1074	3.54	2.10	0.59	1122
21	20	4.17	1.97	0.47	1025	4.00	1.89	0.47	1086	3.88	1.83	0.47	1110	3.74	1.77	0.47	1159
22	18	4.00	2.53	0.63	976	3.83	2.42	0.63	1025	3.67	2.32	0.63	1074	3.54	2.24	0.63	1122
22	20	4.17	2.14	0.51	1025	4.00	2.05	0.51	1086	3.88	1.99	0.51	1110	3.74	1.92	0.51	1159
22	22	4.34	1.70	0.39	1061	4.18	1.64	0.39	1129	4.08	1.60	0.39	1159	3.91	1.54	0.39	1208
23	18	4.00	2.69	0.67	976	3.83	2.57	0.67	1025	3.67	2.47	0.67	1074	3.54	2.38	0.67	1122
23	20	4.17	2.30	0.55	1025	4.00	2.21	0.55	1086	3.88	2.14	0.55	1110	3.74	2.07	0.55	1159
23	22	4.34	1.88	0.43	1061	4.18	1.81	0.43	1129	4.08	1.77	0.43	1159	3.91	1.69	0.43	1208
24	18	4.00	2.85	0.71	976	3.83	2.73	0.71	1025	3.67	2.62	0.71	1074	3.54	2.52	0.71	1122
24	20	4.17	2.47	0.59	1025	4.00	2.37	0.59	1086	3.88	2.30	0.59	1110	3.74	2.22	0.59	1159
24	22	4.34	2.05	0.47	1061	4.18	1.98	0.47	1129	4.08	1.93	0.47	1159	3.91	1.85	0.47	1208
24	24	4.56	1.61	0.35	1110	4.39	1.55	0.35	1171	4.28	1.51	0.35	1208	4.15	1.46	0.35	1269
25	18	4.00	3.01	0.75	976	3.83	2.88	0.75	1025	3.67	2.77	0.75	1074	3.54	2.66	0.75	1122
25	20	4.17	2.64	0.63	1025	4.00	2.53	0.63	1086	3.88	2.45	0.63	1110	3.74	2.37	0.63	1159
25	22	4.34	2.22	0.51	1061	4.18	2.15	0.51	1129	4.08	2.09	0.51	1159	3.91	2.01	0.51	1208
25	24	4.56	1.79	0.39	1110	4.39	1.72	0.39	1171	4.28	1.68	0.39	1208	4.15	1.63	0.39	1269
26	18	4.00	3.17	0.79	976	3.83	3.03	0.79	1025	3.67	2.91	0.79	1074	3.54	2.80	0.79	1122
26	20	4.17	2.80	0.67	1025	4.00	2.69	0.67	1086	3.88	2.61	0.67	1110	3.74	2.52	0.67	1159
26	22	4.34	2.40	0.55	1061	4.18	2.31	0.55	1129	4.08	2.26	0.55	1159	3.91	2.16	0.55	1208
26	24	4.56	1.97	0.43	1110	4.39	1.90	0.43	1171	4.28	1.85	0.43	1208	4.15	1.80	0.43	1269
26	26	4.69	1.47	0.31	1171	4.56	1.43	0.31	1232	4.49	1.40	0.31	1269	4.35	1.36	0.31	1305
27	18	4.00	3.33	0.83	976	3.83	3.19	0.83	1025	3.67	3.06	0.83	1074	3.54	2.95	0.83	1122
27	20	4.17	2.97	0.71	1025	4.00	2.85	0.71	1086	3.88	2.76	0.71	1110	3.74	2.67	0.71	1159
27	22	4.34	2.57	0.59	1061	4.18	2.48	0.59	1129	4.08	2.42	0.59	1159	3.91	2.32	0.59	1208
27	24	4.56	2.15	0.47	1110	4.39	2.07	0.47	1171	4.28	2.03	0.47	1208	4.15	1.96	0.47	1269
27	26	4.69	1.66	0.35	1171	4.56	1.61	0.35	1232	4.49	1.58	0.35	1269	4.35	1.54	0.35	1305
28	18	4.00	3.49	0.87	976	3.83	3.34	0.87	1025	3.67	3.21	0.87	1074	3.54	3.09	0.87	1122
28	20	4.17	3.14	0.75	1025	4.00	3.01	0.75	1086	3.88	2.92	0.75	1110	3.74	2.82	0.75	1159
28	22	4.34	2.74	0.63	1061	4.18	2.65	0.63	1129	4.08	2.58	0.63	1159	3.91	2.48	0.63	1208
28	24	4.56	2.34	0.51	1110	4.39	2.25	0.51	1171	4.28	2.20	0.51	1208	4.15	2.13	0.51	1269
28	26	4.69	1.84	0.39	1171	4.56	1.79	0.39	1232	4.49	1.76	0.39	1269	4.35	1.71	0.39	1305
29	18	4.00	3.65	0.91	976	3.83	3.49	0.91	1025	3.67	3.35	0.91	1074	3.54	3.23	0.91	1122
29	20	4.17	3.30	0.79	1025	4.00	3.17	0.79	1086	3.88	3.07	0.79	1110	3.74	2.97	0.79	1159
29	22	4.34	2.92	0.67	1061	4.18	2.81	0.67	1129	4.08	2.75	0.67	1159	3.91	2.63	0.67	1208
29	24	4.56	2.52	0.55	1110	4.39	2.43	0.55	1171	4.28	2.37	0.55	1208	4.15	2.29	0.55	1269
29	26	4.69	2.03	0.43	1171	4.56	1.97	0.43	1232	4.49	1.94	0.43	1269	4.35	1.88	0.43	1305
30	18	4.00	3.81	0.95	976	3.83	3.65	0.95	1025	3.67	3.50	0.95	1074	3.54	3.37	0.95	1122
30	20	4.17	3.47	0.83	1025	4.00	3.33	0.83	1086	3.88	3.23	0.83	1110	3.74	3.12	0.83	1159
30	22	4.34	3.09	0.71	1061	4.18	2.98	0.71	1129	4.08	2.91	0.71	1159	3.91	2.79	0.71	1208
30	24	4.56	2.70	0.59	1110	4.39	2.60	0.59	1171	4.28	2.54	0.59	1208	4.15	2.46	0.59	1269
30	26	4.69	2.22	0.47	1171	4.56	2.15	0.47	1232	4.49	2.12	0.47	1269	4.35	2.06	0.47	1305
31	18	4.00	3.97	0.99	976	3.83	3.80	0.99	1025	3.67	3.65	0.99	1074	3.54	3.51	0.99	1122
31	20	4.17	3.64	0.87	1025	4.00	3.49	0.87	1086	3.88	3.38	0.87	1110	3.74	3.27	0.87	1159
31	22	4.34	3.26	0.75	1061	4.18	3.15	0.75	1129	4.08	3.07	0.75	1159	3.91	2.94	0.75	1208
31	24	4.56	2.88	0.63	1110	4.39	2.78	0.63	1171	4.28	2.71	0.63	1208	4.15	2.63	0.63	1269
31	26	4.69	2.41	0.51	1171	4.56	2.34	0.51	1232	4.49	2.30	0.51	1269	4.35	2.23	0.51	1305
32	18	4.00	4.13	1.03	976	3.83	3.95	1.03	1025	3.67	3.79	1.03	1074	3.54	3.65	1.03	1122
32	20	4.17	3.80	0.91	1025	4.00	3.65	0.91	1086	3.88	3.54	0.91	1110	3.74	3.41	0.91	1159
32	22	4.34	3.44	0.79	1061	4.18	3.32	0.79	1129	4.08	3.24	0.79	1159	3.91	3.10	0.79	1208
32	24	4.56	3.07	0.67	1110	4.39	2.95	0.67	1171	4.28	2.88	0.67	1208	4.15	2.79	0.67	1269
32	26	4.69	2.59	0.55	1171	4.56	2.52	0.55	1232	4.49	2.48	0.55	1269	4.35	2.41	0.55	1305

NOTE Q :Total capacity (kW) SHF :Sensible heat factor DB :Dry-bulb temperature
SHC :Sensible heat capacity (kW) INPUT :Total power input (W) WB :Wet-bulb temperature

PERFORMANCE DATA
COOL operation (230V)

MSC-A12WV -E1 (Single : Room A) : MUX-A26WV -E1

CAPACITY : 3.4(kW) SHF : 0.77 INPUT : 1220(W)

		OUTDOOR DB(℃)											
INDOOR DB(℃)	INDOOR WB(℃)	35				40				43			
		Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT	Q	SHC	SHF	INPUT
21	18	3.33	1.98	0.59	1196	3.06	1.81	0.59	1269	2.94	1.74	0.59	1293
21	20	3.50	1.66	0.47	1244	3.26	1.54	0.47	1305	3.15	1.49	0.47	1342
22	18	3.33	2.11	0.63	1196	3.06	1.94	0.63	1269	2.94	1.86	0.63	1293
22	20	3.50	1.80	0.51	1244	3.26	1.67	0.51	1305	3.15	1.61	0.51	1342
22	22	3.71	1.46	0.39	1293	3.47	1.36	0.39	1366	3.35	1.32	0.39	1391
23	18	3.33	2.24	0.67	1196	3.06	2.06	0.67	1269	2.94	1.98	0.67	1293
23	20	3.50	1.94	0.55	1244	3.26	1.80	0.55	1305	3.15	1.74	0.55	1342
23	22	3.71	1.60	0.43	1293	3.47	1.50	0.43	1366	3.35	1.45	0.43	1391
24	18	3.33	2.38	0.71	1196	3.06	2.18	0.71	1269	2.94	2.10	0.71	1293
24	20	3.50	2.08	0.59	1244	3.26	1.94	0.59	1305	3.15	1.86	0.59	1342
24	22	3.71	1.75	0.47	1293	3.47	1.64	0.47	1366	3.35	1.58	0.47	1391
24	24	3.91	1.38	0.35	1342	3.67	1.30	0.35	1403	3.57	1.26	0.35	1434
25	18	3.33	2.51	0.75	1196	3.06	2.30	0.75	1269	2.94	2.21	0.75	1293
25	20	3.50	2.22	0.63	1244	3.26	2.07	0.63	1305	3.15	1.99	0.63	1342
25	22	3.71	1.90	0.51	1293	3.47	1.78	0.51	1366	3.35	1.72	0.51	1391
25	24	3.91	1.54	0.39	1342	3.67	1.44	0.39	1403	3.57	1.40	0.39	1434
26	18	3.33	2.64	0.79	1196	3.06	2.43	0.79	1269	2.94	2.33	0.79	1293
26	20	3.50	2.36	0.67	1244	3.26	2.20	0.67	1305	3.15	2.12	0.67	1342
26	22	3.71	2.05	0.55	1293	3.47	1.92	0.55	1366	3.35	1.85	0.55	1391
26	24	3.91	1.69	0.43	1342	3.67	1.59	0.43	1403	3.57	1.55	0.43	1434
26	26	4.11	1.29	0.31	1391	3.88	1.21	0.31	1452	3.76	1.18	0.31	1482
27	18	3.33	2.78	0.83	1196	3.06	2.55	0.83	1269	2.94	2.45	0.83	1293
27	20	3.50	2.50	0.71	1244	3.26	2.33	0.71	1305	3.15	2.24	0.71	1342
27	22	3.71	2.20	0.59	1293	3.47	2.06	0.59	1366	3.35	1.99	0.59	1391
27	24	3.91	1.85	0.47	1342	3.67	1.74	0.47	1403	3.57	1.69	0.47	1434
27	26	4.11	1.45	0.35	1391	3.88	1.37	0.35	1452	3.76	1.33	0.35	1482
28	18	3.33	2.91	0.87	1196	3.06	2.67	0.87	1269	2.94	2.57	0.87	1293
28	20	3.50	2.64	0.75	1244	3.26	2.46	0.75	1305	3.15	2.37	0.75	1342
28	22	3.71	2.35	0.63	1293	3.47	2.20	0.63	1366	3.35	2.12	0.63	1391
28	24	3.91	2.01	0.51	1342	3.67	1.88	0.51	1403	3.57	1.83	0.51	1434
28	26	4.11	1.62	0.39	1391	3.88	1.52	0.39	1452	3.76	1.48	0.39	1482
29	18	3.33	3.04	0.91	1196	3.06	2.79	0.91	1269	2.94	2.69	0.91	1293
29	20	3.50	2.78	0.79	1244	3.26	2.59	0.79	1305	3.15	2.49	0.79	1342
29	22	3.71	2.49	0.67	1293	3.47	2.33	0.67	1366	3.35	2.25	0.67	1391
29	24	3.91	2.16	0.55	1342	3.67	2.03	0.55	1403	3.57	1.97	0.55	1434
29	26	4.11	1.78	0.43	1391	3.88	1.68	0.43	1452	3.76	1.63	0.43	1482
30	18	3.33	3.18	0.95	1196	3.06	2.92	0.95	1269	2.94	2.80	0.95	1293
30	20	3.50	2.92	0.83	1244	3.26	2.72	0.83	1305	3.15	2.62	0.83	1342
30	22	3.71	2.64	0.71	1293	3.47	2.47	0.71	1366	3.35	2.39	0.71	1391
30	24	3.91	2.32	0.59	1342	3.67	2.18	0.59	1403	3.57	2.12	0.59	1434
30	26	4.11	1.95	0.47	1391	3.88	1.83	0.47	1452	3.76	1.78	0.47	1482
31	18	3.33	3.31	0.99	1196	3.06	3.04	0.99	1269	2.94	2.92	0.99	1293
31	20	3.50	3.06	0.87	1244	3.26	2.85	0.87	1305	3.15	2.75	0.87	1342
31	22	3.71	2.79	0.75	1293	3.47	2.61	0.75	1366	3.35	2.52	0.75	1391
31	24	3.91	2.48	0.63	1342	3.67	2.32	0.63	1403	3.57	2.26	0.63	1434
31	26	4.11	2.11	0.51	1391	3.88	1.99	0.51	1452	3.76	1.93	0.51	1482
32	18	3.33	3.44	1.03	1196	3.06	3.16	1.03	1269	2.94	3.04	1.03	1293
32	20	3.50	3.20	0.91	1244	3.26	2.98	0.91	1305	3.15	2.87	0.91	1342
32	22	3.71	2.94	0.79	1293	3.47	2.75	0.79	1366	3.35	2.66	0.79	1391
32	24	3.91	2.63	0.67	1342	3.67	2.47	0.67	1403	3.57	2.40	0.67	1434
32	26	4.11	2.28	0.55	1391	3.88	2.14	0.55	1452	3.76	2.08	0.55	1482

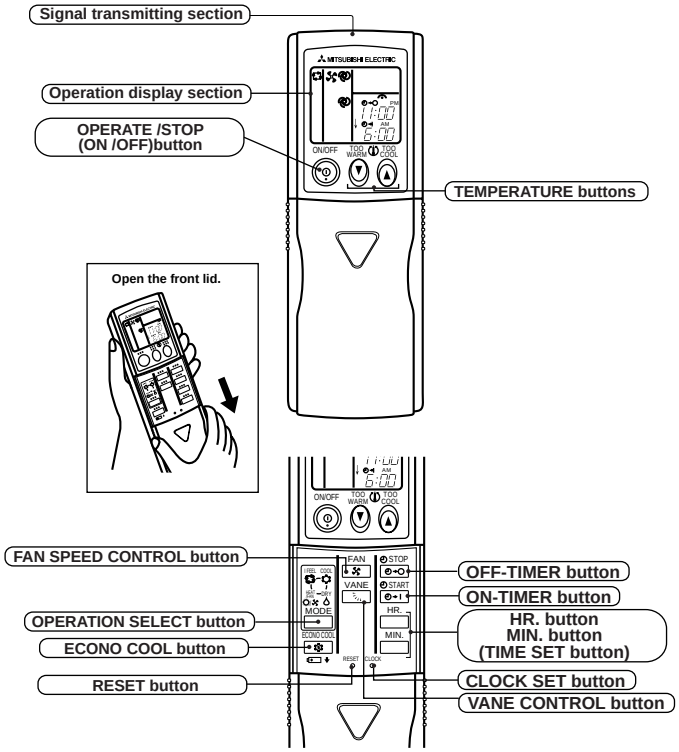
NOTE Q :Total capacity (kW) SHF :Sensible heat factor DB :Dry-bulb temperature
SHC :Sensible heat capacity (kW) INPUT :Total power input (W) WB :Wet-bulb temperature

11 MICROPROCESSOR CONTROL

MSC-A07WV -E1 MU-A07WV -E1 MUH-A07WV -E1 MUX-A10WV -E1 MUX-A25WV -E1
MSC-A09WV -E1 MU-A09WV -E1 MUH-A09WV -E1 MUX-A19WV -E1 MUX-A26WV -E1
MSC-A12WV -E1 MU-A12WV -E1 MUH-A12WV -E1 MUX-A20WV -E1

Once the operation mode are set, the same operation mode can be repeated by simply turning the OPERATE/STOP (ON/OFF) button ON. Indoor unit receives the signal with a beep tone.
When the system turns off, 3-minute time delay will operate to protect system from overload and compressor will not restart for 3 minutes.

WIRELESS REMOTE CONTROLLER



INDOOR UNIT DISPLAY SECTION

Operation Indicator lamp

The operation indicator at the right side of the indoor unit indicates the operation state.

- The following indication does not depend on the shape of lamp.

Operation Indicator **lighted** **not lighted**

Indication	Operation state	Difference between target temperature and room temperature
■ ■	This shows that the air conditioner is operating to reach the target temperature. Please wait until the target temperature is obtained.	Approx. 2 ℃ or more
■ □	This shows that the room temperature is approaching the target temperature.	Approx. 2 ℃ or less

11-1. COOL (✿) OPERATION

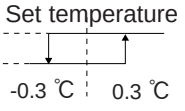
(1) Press OPERATE/STOP(ON/OFF) button. OPERATION INDICATOR lamp of the indoor unit turns on with a beep tone.
(2) Select COOL mode with the OPERATION SELECT button.
(3) Press TEMPERATURE buttons (TOO WARM or TOO COOL button)to select the desired temperature.
The setting range is 16 ~ 31°C

1. Thermostat control

Thermostat is ON or OFF by difference between room temperature and set temperature

Initial temperature difference	Thermostat
Room temperature minus set temperature : 0.3 ℃ or more	ON
Room temperature minus set temperature : less than -0.3 ℃	OFF

Difference between room temperature and set temperature during operation

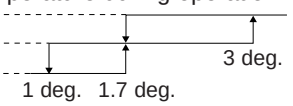


2. Indoor fan speed control

Indoor fan operates continuously at the set speed by FAN SPEED CONTROL button regardless of thermostat's OFF-ON.
In Auto the fan speed is as follows.

Initial temperature difference	Fan speed
Room temperature minus set temperature : 1.7 degrees or more	High
Room temperature minus set temperature : Between 1 and 1.7 degrees	Med.
Room temperature minus set temperature : less than 1 degree	Low

Difference between room temperature and set temperature during operation



3. Coil frost prevention

① Temperature control

When the indoor coil thermistor RT12 reads 4°C or below(MSC-A07/A09WV) / 0°C or below(MSC-A12WV) for 5 minutes, the coil frost prevention mode starts.

The indoor fan operates at the set speed and the compressor stops for 5 minutes.
After that, if RT12 still reads below 4°C (MSC-A07/A09WV) / 0°C (MSC-A12WV), this mode is prolonged until the RT12 reads over 4°C (MSC-A07/A09WV) / 0°C (MSC-A12WV).

② Time control

When the three conditions as follows have been satisfied for 1 hour and 45 minutes, the compressor stops for 3 minutes. The indoor fan operates at the set speed.

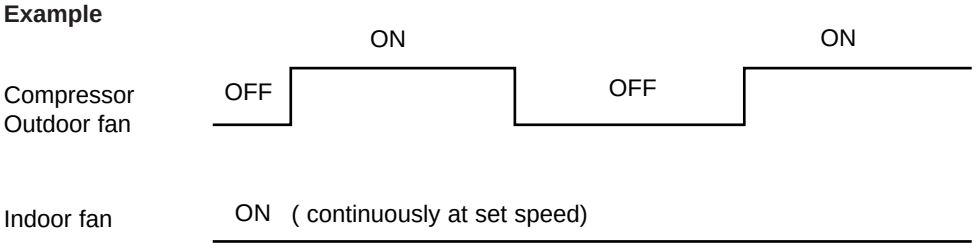
a. Compressor has been continuously operating.
b. Indoor fan speed is Low or Med.
c. Room temperature is below 26°C.

When compressor stops, the accumulated time is cancelled. When compressor restarts, time counting starts from the beginning.

Time counting also stops temporarily when the indoor fan speed becomes High or the room temperature exceeds 26°C. However, when two of the above conditions (b.and c.) are satisfied again, time accumulation is resumed.

Operation chart

Example

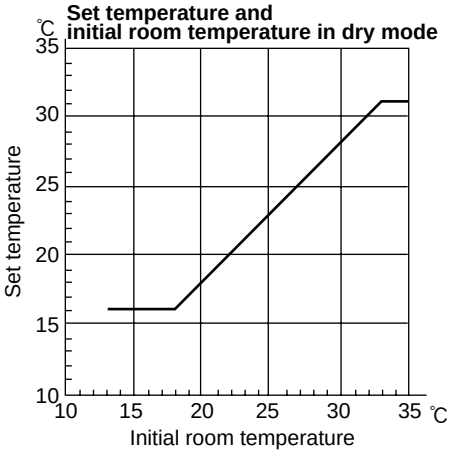


11-2. DRY (△) OPERATION

(1) Press OPERATE/STOP(ON/OFF) button.
OPERATION INDICATOR lamp of the indoor unit turns on with a beep tone.
(2) Select DRY mode with the OPERATION SELECT button.
(3) The microprocessor reads the room temperature and determines the set temperature. Set temperature is as shown on the right chart.
DRY operation will not function when the room temperature is 13°C or below.
(4) When DRY operation functions the fan speed is lower than COOL operation except at (fan speed) Low.

The system for dry operation uses the same refrigerant circuit as the cooling circuit.
The compressor and the indoor fan are controlled by the room temperature.

Set temperature and initial room temperature in dry mode

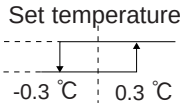


1. Thermostat control

Thermostat is ON or OFF by difference between room temperature and set temperature.

Initial temperature difference	Thermostat
Room temperature minus set temperature : 0.3 ℃ or more	ON
Room temperature minus set temperature : less than -0.3 ℃	OFF

Difference between room temperature and set temperature during operation



2. Indoor fan speed control

Indoor fan operates at the set speed by FAN SPEED CONTROL button.
In Auto fan speed becomes Low.

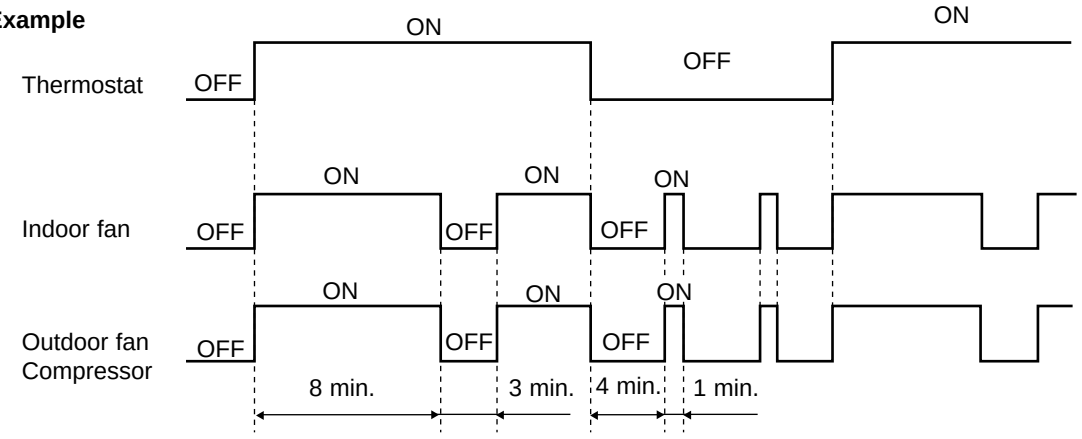
3. The operation of the compressor and indoor / outdoor fan <MU-A07/A09/A12WV, MUH-A07/A09/A12WV, MUX-A10/A19/A20/A25/A26WV>

Compressor operates by room temperature control and time control.
Indoor fan and outdoor fan operate in the same cycle as the compressor.

- When the room temperature is 23°C or over:
  When the thermostat is ON, the compressor repeats 8 minutes ON and 3 minutes OFF.
  When the thermostat is OFF, the compressor repeats 4 minutes OFF and 1 minute ON.
- When the room temperature is under 23°C.
  When the thermostat is ON, the compressor repeats 2 minutes ON and 3 minutes OFF.
  When the thermostat is OFF, the compressor repeats 4 minutes OFF and 1 minute ON.

Operation time chart

Example



4. Coil frost prevention

The operation is as same as coil frost prevention during COOL operation.(Refer to 11-1.3.)
However when coil frost prevention works while the indoor fan is OFF, its speed becomes set speed.

11-3. FAN (✾) OPERATION <MU-A07/A09/A12WV, MUX-A10/A19/A20/A25/A26WV>

(1) Press OPERATE/STOP(ON/OFF) button. OPERATION INDICATOR lamp of the indoor unit turns on with a beep tone.
(2) Select FAN mode with the OPERATION SELECT button.
(3) Select the desired fan speed. When AUTO, it becomes Low.
Only indoor fan operates.
Outdoor unit does not operate.

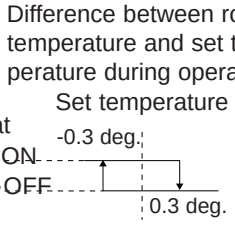
11-4. HEAT (☼) OPERATION <MUH-A07/A09/A12WV>

(1) Press OPERATE/STOP(ON/OFF) button.
OPERATION INDICATOR lamp of the indoor unit turns on with a beep tone.
(2) Select HEAT mode with the OPERATION SELECT button.
(3) Press TEMPERATURE buttons (TOO WARM or TOO COOL button) to select the desired temperature.
The setting range is 16 ~ 31°C.

1. Thermostat control

Thermostat is ON or OFF by difference between room temperature and set temperature.

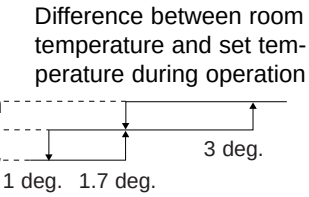
Initial temperature difference	Thermostat
Room temperature minus set temperature : less than -0.3 ℃	ON
Room temperature minus set temperature : 0.3 ℃ or more	OFF



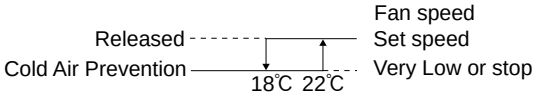
2. Indoor fan speed control

(1) Indoor fan operates at the set speed by FAN SPEED CONTROL button.
In Auto the fan speed is as follows.

Initial temperature difference	Fan speed
Set temperature minus room temperature: 1.7 degrees or more	High
Set temperature minus room temperature: Between 1 and 1.7 degrees	Med.
Set temperature minus room temperature: less than 1 degree	Low



(2) Cold air prevention control
① When the compressor is not operating,
(Ⅰ) if the temperature of indoor coil thermistor RT12 is 0°C or less, the fan stops.
(Ⅱ) if the temperature of indoor coil thermistor RT12 is more than 0°C, the fan operates at Very Low.
② When the compressor is operating,
(Ⅰ) if the temperature of RT12 is 22°C or more, the fan operates at set speed.
(Ⅱ) if the temperature of RT12 is less than 22°C and
(ⅰ) if the temperature of room temperature thermistor RT11 is 15°C or less, the fan stops.
(ⅱ) if the temperature of room temperature thermistor RT11 is more than 15°C, the fan operates at Very Low.



NOTE : If the temperature of RT12 reads from 18°C to 22°C at the air conditioner stating and also after defrosting, this control works.

(3) Warm air control.

When the following any condition of ① (a. ~ c.) and the condition of ② are satisfied at the same time, warm air control works.

① a.) When outdoor unit starts operating inHEAT mode.
b.) When cold air prevention has been released.
c.) When defrosting has been finished

② When the temperature of indoor coil thermistor RT12 is less than 37°C.

When warm air control works, the fan speed changes as follows to blow out warm air gradually.

Gradation of fan speed in initial

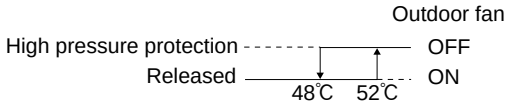
<Time condition>	<Indoor fan speed>
less than 2 minutes	Low
2 minutes to 4 minutes	Med.
more than 4 minutes	High

The upper limit of the fan speed in MANUAL is the set speed.
The upper limit of the fan speed in AUTO is the speed decided by indoor fan speed control.(Refer to 11-4.2.(1).)
When the temperature of RT12 has been 37°C or more, or when the set speed has been changed, this control is released and the fan speed is the set speed.

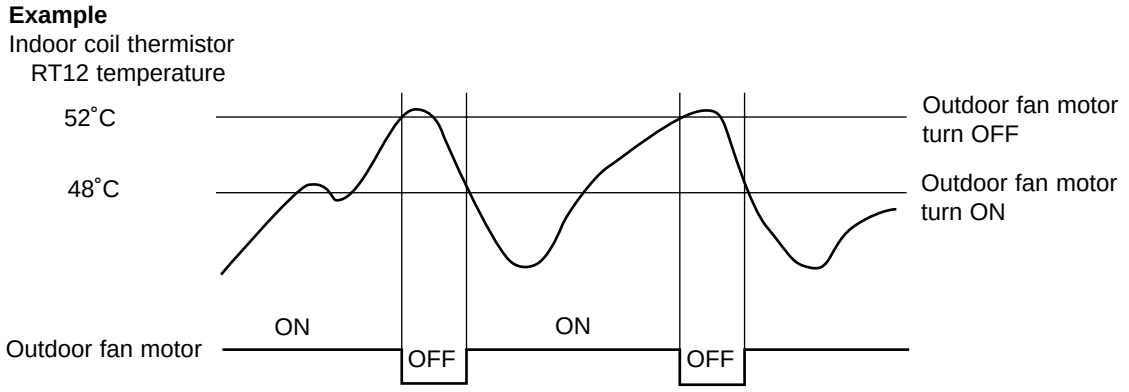
3. High pressure protection <MUH-A07/A09/A12WV>

During heating operation, the outdoor fan motor is controlled by the temperature of indoor coil thermistor RT12 for excess rise protection of compressor discharge pressure.

Outdoor fan OFF: 52℃
Outdoor fan ON: 48℃



Operation chart
Example



NOTE : During high pressure protection and for 4 min. and 15 sec. after high pressure protection, defrosting of outdoor heat exchanger is not detected by the defrost thermistor RT61.(Refer to 11-4.4. Defrosting.)

4. Defrosting <MUH-A07/A09/A12WV>

Defrosting of outdoor heat exchanger is controlled by DEICER P.C. board, with detection by the defrost thermistor RT61.

(1) Starting conditions of defrost

When all conditions of a) ~ c) are satisfied, the defrosting operation starts.

a) The compressor cumulative operation time exceeds 40 minutes without the defrosting operation working.

b) RT61 reads - 3°C or less.

c) After releasing the high pressure protection 4 minutes and 15 seconds have elapsed.

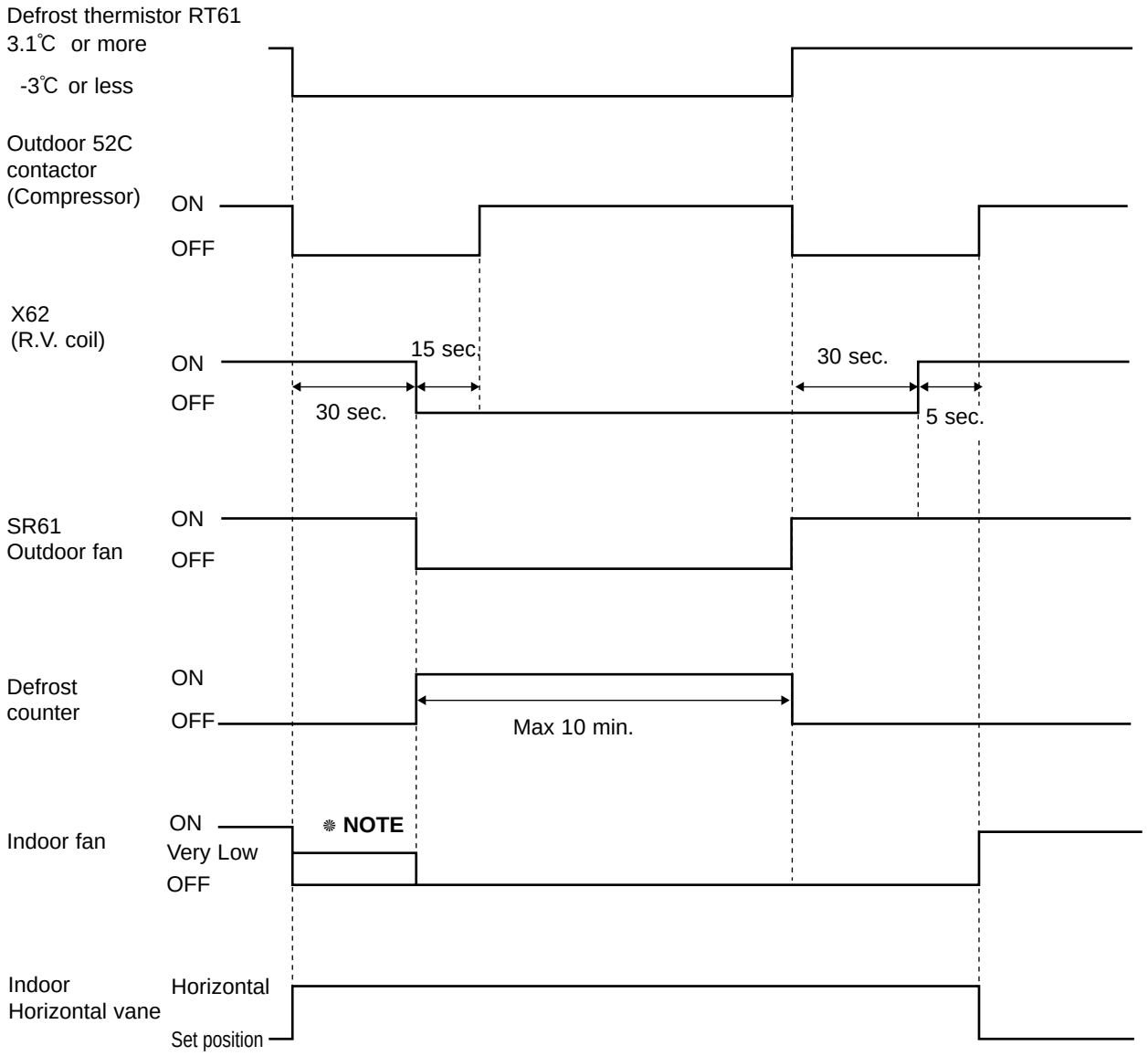
(2) Releasing conditions of defrost

When the condition d) or e) is satisfied, the defrosting operation stops.

d) RT61 reads 3.1°C or more.

e) The defrosting time exceeds 10 minutes.

Operation time chart
Example



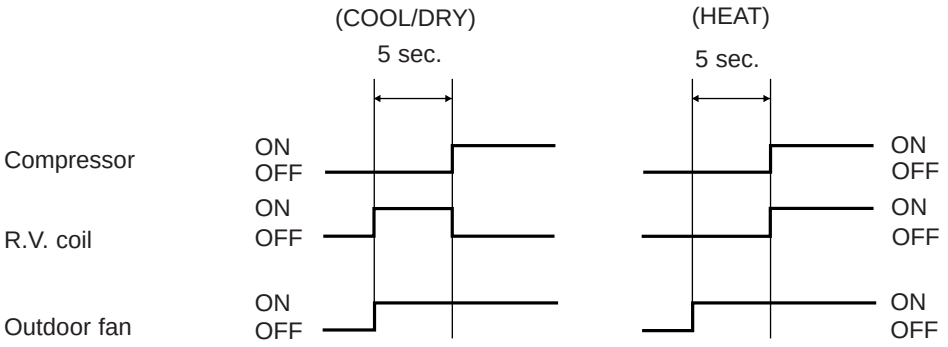
NOTE ● When the indoor coil thermistor RT12 reads above 0°C, indoor fan operates at Very Low for 30 seconds.
● When the indoor coil thermistor RT12 reads 0°C or less, the indoor fan stops.

5. R.V. coil control <MUH-A07/A09/A12WV>

Heating · · · · · ON
Cooling · · · · · OFF
Dry · · · · · · · · · OFF

When operation starts, the 4-way valve reverses for 5 seconds right before start-up of the compressor.

Operation time chart



11-5. "I FEEL CONTROL" (▭) OPERATION

(1) Press OPERATE/STOP(ON/OFF) button.
OPERATION INDICATOR lamp of the indoor unit turns on with a beep tone.

(2) Select "I FEEL CONTROL"(▭) mode with the OPERATION SELECT button.

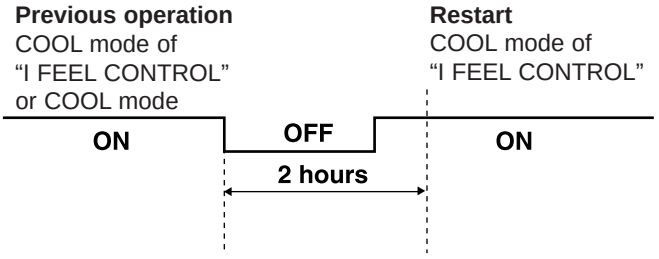
(3) The operation mode is determined by the initial room temperature at start-up of the operation, as shown on the right table.

Initial room temperature		Mode
MU&MUX type	**MUH type**	
25℃ or more	25℃ or more	COOL mode of "I FEEL CONTROL"
more than13℃, less than 25℃	23℃ or more, less than 25℃	DRY mode of "I FEEL CONTROL"
———	less than 23℃	HEAT mode of "I FEEL CONTROL"

- Once the mode is fixed, the mode does not change by room temperature afterwards.
- Under the ON-TIMER (◴→|) operation, mode is determined according to the room temperature at set time the operation starts.
- When the system is stopped on the remote controller and restarted within 2 hours in "I FEEL CONTROL" (▭) mode, the system operates in previous mode automatically regardless of the room temperature.

Operation time chart

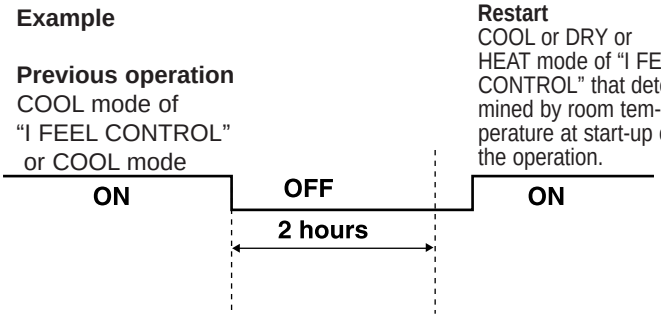
Example



When the system is restarted after 2 hours and more, the operation mode is determined by the room temperature at start-up of the operation.

Operation time chart

Example



(4) The initial set temperature is decided by the initial room temperature.

Mode	Initial room temperature		Initial set temperature	
	MU & MUX type	**MUH type**		
COOL mode of "I FEEL CONTROL"	26℃ or more	26℃ or more	24℃	※1
	25℃ or more, less than 26℃	25℃ or more, less than 26℃	Initial room temperature minus 2℃	
DRY mode of "I FEEL CONTROL"	more than 13℃, less than 25℃	23℃ or more, less than25℃	Initial room temperature minus 2℃	
HEAT mode of "I FEEL CONTROL"	———	less than 23℃	26℃	

※1 When the system is restarted with the remote controller, the system operates with the previous set temperature regardless of the room temperature at restart.

(5) TEMPERATURES buttons

In "I FEEL CONTROL" (▭) mode, set temperature is decided by the microprocessor based on the room temperature. In addition, set temperature can be controlled by TOO WARM or TOO COOL buttons when you feel too cool or too warm. Each time the TOO WARM or TOO COOL button is pressed, the indoor unit receives the signal and emits a beep tone.

● **Fuzzy control**

When the TOO COOL or TOO WARM button is pressed, the microprocessor changes the set temperature, considering the room temperature, the frequency of pressing TOO COOL or TOO WARM button and the user's preference to heat or cool. So this is called "Fuzzy control", and works only in "I FEEL CONTROL" mode.
In DRY mode of "I FEEL CONTROL", the set temperature doesn't change.

··· To raise the set temperature 1~2 degrees(°C)

··· To lower the set temperature 1~2 degrees(°C)

11-5-1. COOL mode of "I FEEL CONTROL"

1. Thermostat control
Thermostat control is as same as COOL OPERATION.(11-1.1.)

2. Indoor fan speed control
Indoor fan speed control is as same as COOL OPERATION.(11-1.2.)

3. Coil frost prevention
Coil frost prevention is as same as COOL OPERATION.(11-1.3.)

11-5-2. DRY mode of "I FEEL CONTROL"

1. Thermostat control
Thermostat control is as same as DRY OPERATION.(11-2.1.)

2. Indoor fan speed control
Indoor fan speed control is as same as DRY OPERATION.(11-2.2.)

3. The operation of the compressor and indoor/outdoor fan
The operation of the compressor and indoor/outdoor fan is as same as DRY OPERATION.(11-2.3.)

4. Coil frost prevention
Coil frost prevention is as same as DRY OPERATION.(11-2.4.)

11-5-3. HEAT mode of "I FEEL CONTROL" <MUH-A07/A09/A12WV>

1. Thermostat control
Thermostat control is as same as HEAT OPERATION.(11-4.1.)

2. Indoor fan speed control
Indoor fan speed control is as same as HEAT OPERATION.(11-4.2.)

3. High pressure protection
High pressure protection is as same as HEAT OPERATION.(11-4.3.)

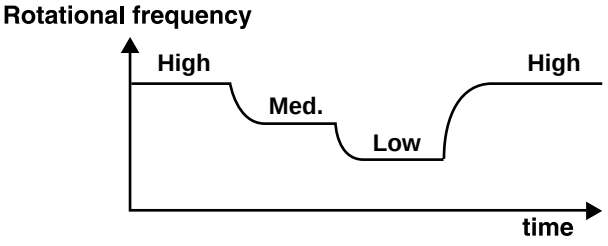
4. Defrosting
Defrosting is as same as HEAT OPERATION.(11-4.4.)

5. R.V. coil control
R.V. coil control is as same as HEAT OPERATION.(11-4.5.)

11-6. FAN MOTOR CONTROL

(1) Rotational frequency feedback control

The indoor fan motor is equipped with a rotational frequency sensor, and outputs signal to the microprocessor to feedback the rotational frequency. Comparing the current rotational frequency with the target rotational frequency (High,Med.,Low), the microprocessor controls SR141 and adjusts fan motor electric current to make the current rotational frequency close to the target rotational frequency. With this control, when the fan speed is switched, the rotational frequency changes smoothly.



(2) Fan motor lock-up protection

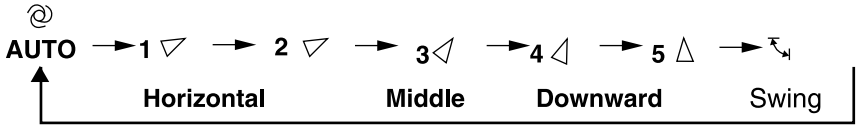
When the rotational frequency feedback signal is not output for 12 seconds, (or when the microprocessor cannot detect the signal for 12 seconds) the fan motor is regarded locked-up. Then the electric current to the fan motor is shut off. 3 minutes later, the electric current is applied to the fan motor again. During the fan motor lock-up, the OPERATION INDICATOR lamp flashes on and off to show the fan motor abnormality. (Refer to page 109.)

11-7. AUTO VANE OPERATION

(1) Vane motor drive

These models are equipped with a stepping motor for the horizontal vane. The rotating direction, speed, and angle of the motor are controlled by pulse signals (approx. 12V) transmitted from indoor microprocessor.

(2) The horizontal vane angle and mode changes as follows by pressing the VANE CONTROL button.



(3) Positioning

The vane is once pressed to the vane stopper below to confirm the standard position and then set to the desired angle. Confirming of standard position is performed in case of follows.

(a) When the OPERATE/STOP(ON/OFF) button is pressed.
(b) When the vane control is changed from AUTO to MANUAL.
(c) When the SWING is finished.
(d) When the test run starts.
(e) When the power supply turns ON.

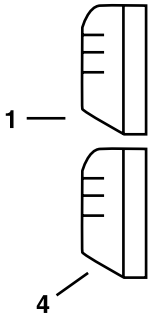
(4) VANE AUTO ( ) mode

In VANE AUTO mode, the microprocessor automatically determines the vane angle to make the optimum room-temperature distribution.

① In COOL and DRY operation

② In FAN operation **<MU-A07/A09/A12WV>**

② In HEAT operation **<MUH-A07/A09/A12WV>**



Vane angle is fixed to Angle 1.

Vane angle is fixed to Angle 4.

(5) Dew prevention

During COOL or DRY operation at Vane Angle 4 or 5 when the cumulative operation time of compressor exceeds 1 hour, the vane angle automatically changes to Angle 1 for dew prevention.

(6) SWING MODE ( )

By selecting SWING mode with the VANE CONTROL button, the horizontal vane swings vertically. The remote controller displays " ".

(7) Cold air prevention in HEAT operation **<MUH-A07/A09/A12WV>**

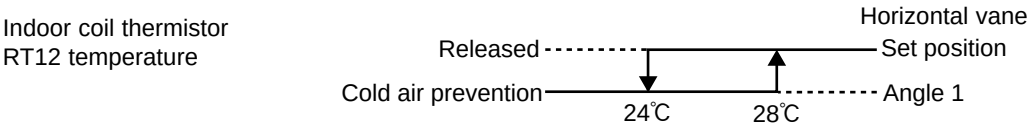
When any of the following conditions occurs in HEAT operation, the horizontal vane angle changes to Angle 1 automatically to prevent cold air blowing on users.

① Compressor is not operating.

② Defrosting is performed.

③ Indoor coil thermistor RT12 reads 24℃ or below.

④ Indoor coil thermistor RT12 temperature is raising from 24°C or below, but it does not exceed 28℃.



NOTE : If the temperature of RT12 reads from 24°C to 28°C at the air conditioner stating , this control works.

(8) ECONO COOL ( ) operation (ECONOmical operation)

When the ECONO COOL button is pressed in COOL mode, set temperature is automatically set 2°C higher than that in COOL mode.

Also the horizontal vane swings in various cycle according to the temperature of indoor heat exchanger(RT12).

SWING operation makes you feel cooler than set temperature. So, even though the set temperature is higher than that in COOL mode, the air conditioner can keep comfort. As a result, energy can be saved.

ECONO COOL operation is cancelled when the ECONO COOL button is pressed once again or VANE CONTROL button is pressed or operation mode is changed.

NOTE : ECONO COOL operation does not work in COOL mode of “I FEEL CONTROL”.

SWING operation

In swing operation of ECONO COOL operation mode, the initial air flow direction is adjusted to “Horizontal”.

According to the temperature of indoor coil thermistor RT12 at starting of this operation, next downward blow time is decided. Then when the downward blow has been finished, next upward blow time is decided.

For initial 10 min. the swing operation is performed in table G~H for quick cooling.

Also, after 10 min. when the difference of set temperature and room temperature is more than 2 degrees, the swing operation is performed in table D~H for more cooling.

The air conditioner repeats the swing operation in various cycle as follows.

	Temperature of indoor coil thermistor RT12	Downward blow time (sec.)	Horizontal blow time (sec.)
A	15°C or less	2	23
B	15°C to 17°C	5	20
C	17°C to 18°C	8	17
D	18°C to 20°C	11	14
E	20°C to 21°C	14	11
F	21°C to 22°C	17	8
G	22°C to 24°C	20	5
H	more than 24°C	23	2

11-8. TIMER OPERATION

1. How to set the timer

(1) Press OPERATE/STOP(ON/OFF) button to start the air conditioner.

(2) Check that the current time is set correctly.

NOTE : Timer operation will not work without setting the current time. Initially “AM0:00” blinks at the current time display of TIME MONITOR, so set the current time correctly with CLOCK SET button.

(3) Press ON or OFF TIMER buttons to select the operation.

“◴→| ” button... AUTO START operation (ON timer)

“◴→◯ ” button... AUTO STOP operation (OFF timer)

(4) Press HR. and MIN. button to set the timer. Time setting is 10-minute units.

HR. and MIN. button will work when " ◴→| " or " ◴→◯ " mark is flashing.
These marks disappear in 1 minute.
After setting the ON timer, check that OPERATION INDICATOR lamp of the indoor unit lights.

NOTE1 : Be sure to place the remote controller at the position where its signal can reach the air conditioner even during TIMER operation, or the set time may deviate within the range of about 10 minutes.

NOTE2 : Reset the timer in the following cases, or the set time may deviate and other malfunctions may occur.

- A power failure occurs.
- The circuit breaker functions.

2. Cancel

TIMER setting can be cancelled with the ON or OFF TIMER buttons. (" ◴→| " or " ◴→◯ ")

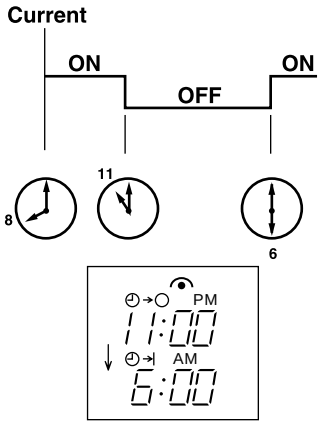
To cancel the ON timer, press the " ◴→| " button.

To cancel the OFF timer, press the " ◴→◯ " button.
TIMER is cancelled and the display of set time disappears.

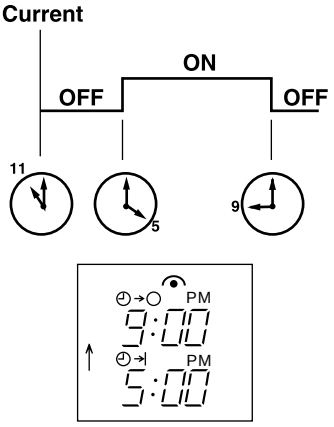
PROGRAM TIMER

- The OFF timer and ON timer can be used in combination.
- " ↑ " and " ↓ " display shows the order of the OFF timer and ON timer operation.

(Example 1) The current time is 8:00 PM.
The unit turns off at 11:00 PM, and on at 6:00 AM.



(Example 2) The current time is 11:00 AM.
The unit turns on at 5:00 PM, and off at 9:00 PM.

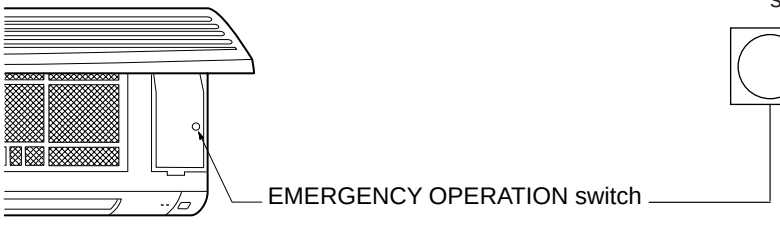


NOTE : TIMER setting will be cancelled by power failure or breaker functioning.

11-9. EMERGENCY-TEST OPERATION

In case of test run operation or emergency operation, use the EMERGENCY OPERATION switch on the front of the indoor unit. Emergency operation is available when the remote controller is missing, has failed or the batteries of remote controller run down. The unit will start and the OPERATION INDICATOR lamp will light.
The first 30 minutes of operation is the test run operation. This operation is for servicing. The indoor fan speed runs at High speed and the system is in continuous operation. (The thermostat is ON.)
After 30 minutes of test run operation the system shifts to EMERGENCY COOL [/HEAT <MUH-A07/A09/A12WV, MXZ-A18WV>] MODE with a set temperature of 24°C. The fan speed shifts to Med. speed.
The coil frost prevention works even in emergency operation [, and defrosting <MUH-A07/A09/A12WV, MXZ-A18WV> too].
In the test run or emergency operation, the horizontal vane operates in VANE AUTO ( ) mode.
Emergency operation continues until the EMERGENCY OPERATION switch is pressed once again (MU-A07/A09/A12WV, MUX-A10/A19/A20/A25/A26WV)/once or twice (MUH-A07/A09/A12WV, MXZ-A18WV) or the unit receives any signal from the remote controller. In case of latter normal operation will start.

NOTE : Do not press the EMERGENCY OPERATION switch during normal operation.



• The following indication does not depend on the shape of lamp.

OPERATION INDICATOR lamp

Press once <Cool> ☼ □

Press again <Heat> □ ☼

Press once again <Stop> □ □

※ Heat is available only in MUH-A07/A09/A12WV and MXZ-A18WV.

11-10. OUTDOOR UNIT ACTUATOR CONTROL

MUX-A10WV -E1

ACTUATOR \ INDOOR UNIT			A	B
COMPRE-SSOR	MC	ON	ON	ON
			ON	OFF
			OFF	ON
		OFF	OFF	OFF
OUTDOOR FAN MOTOR	MF61	ON	ANY UNIT ON	
		OFF	OFF	OFF
SOLENOID VALVE	21R (BALANCE)	ON (CLOSE)	ON	ON
			ON	OFF
			OFF	ON
		OFF (OPEN)	OFF	OFF
	21R1	ON (OPEN)	ON	–
		OFF (CLOSE)	OFF	–
	21R2	ON (OPEN)	–	ON
		OFF (CLOSE)	–	OFF

MUX-A20WV -E1

ACTUATOR \ INDOOR UNIT			A	B	C
COMPRE-SSOR	MC1	ON	ON	–	–
		OFF	OFF	–	–
	MC2	ON	–	ON	ON
			–	ON	OFF
			–	OFF	ON
		OFF	–	OFF	OFF
OUTDOOR FAN MOTOR	MF61	ON	ANY UNIT ON		
		OFF	OFF	OFF	OFF
SOLENOID VALVE	21R3	ON (OPEN)	–	ON	–
		OFF (CLOSE)	–	OFF	–
	21R4	ON (OPEN)	–	–	ON
		OFF (CLOSE)	–	–	OFF
	21RB	ON (CLOSE)	–	ON	ON
			–	ON	OFF
			–	OFF	ON
		OFF (OPEN)	–	OFF	OFF

MUX-A19WV -E1 MUX-A25WV -E1

ACTUATOR \ INDOOR UNIT			A	B
COMPRE-SSOR	MC1	ON	ON	–
		OFF	OFF	–
	MC2	ON	–	ON
		OFF	–	OFF
OUTDOOR FAN MOTOR	MF61	ON	ANY UNIT ON	
		OFF	OFF	OFF

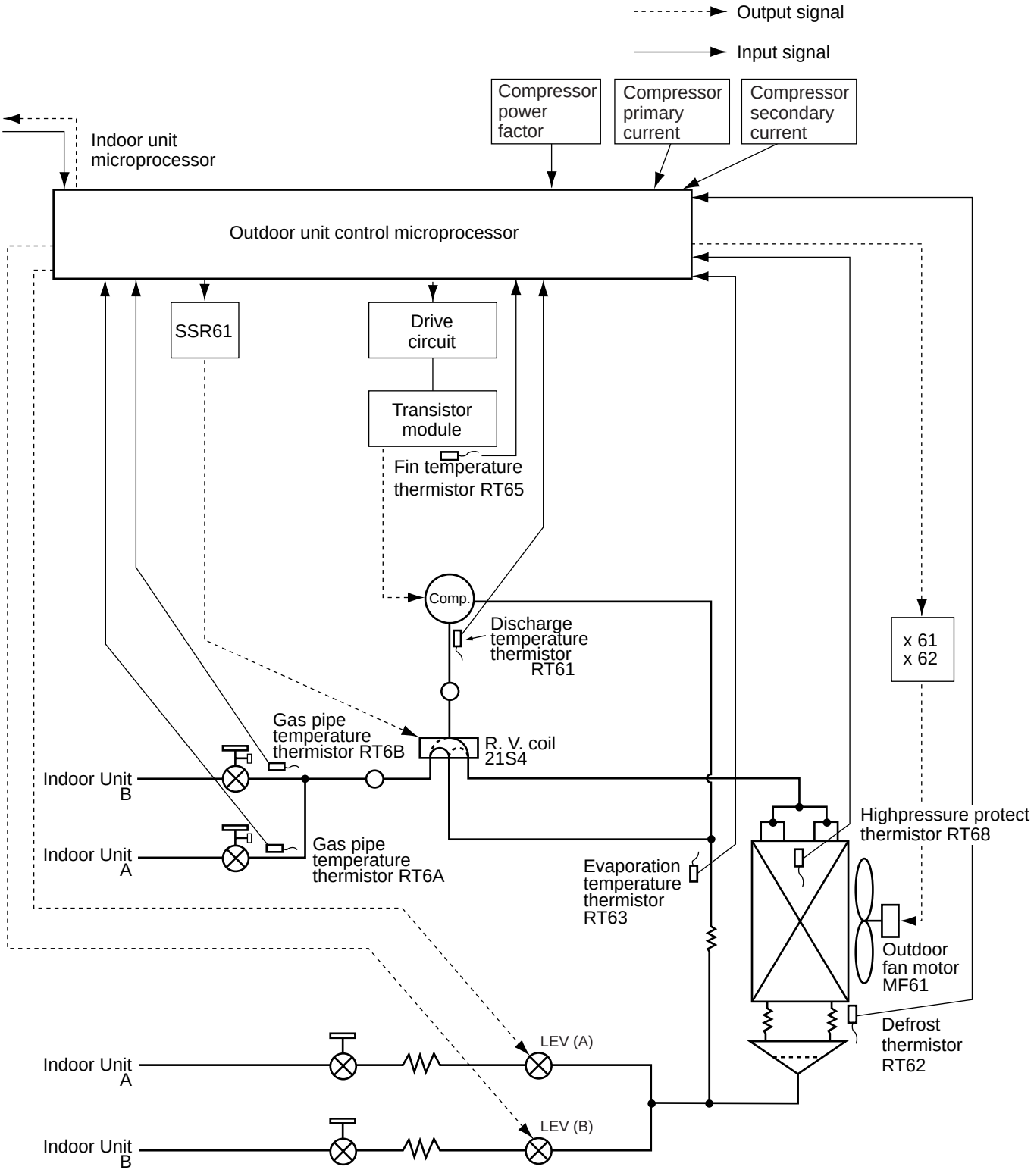
MUX-A26WV -E1

ACTUATOR \ INDOOR UNIT			A	B	C	D
COMPRE-SSOR	MC1	ON	ON	ON	–	–
			ON	OFF	–	–
			OFF	ON	–	–
		OFF	OFF	OFF	–	–
	MC2	ON	–	–	ON	ON
			–	–	ON	OFF
			–	–	OFF	ON
		OFF	–	–	OFF	OFF
OUTDOOR FAN MOTOR	MF61	ON	ANY UNIT ON			
		OFF	OFF	OFF	OFF	OFF
SOLENOID VALVE	21R1	ON (OPEN)	ON	–	–	–
		OFF (CLOSE)	OFF	–	–	–
	21R2	ON (OPEN)	–	ON	–	–
		OFF (CLOSE)	–	OFF	–	–
	21R3	ON (OPEN)	–	–	ON	–
		OFF (CLOSE)	–	–	OFF	–
	21R4	ON (OPEN)	–	–	–	ON
		OFF (CLOSE)	–	–	–	OFF
	21RA (BALANCE)	ON (CLOSE)	ON	ON	–	–
			ON	OFF	–	–
			OFF	ON	–	–
		OFF (OPEN)	OFF	OFF	–	–
	21RB (BALANCE)	ON (CLOSE)	–	–	ON	ON
			–	–	ON	OFF
			–	–	OFF	ON
		OFF (OPEN)	–	–	OFF	OFF

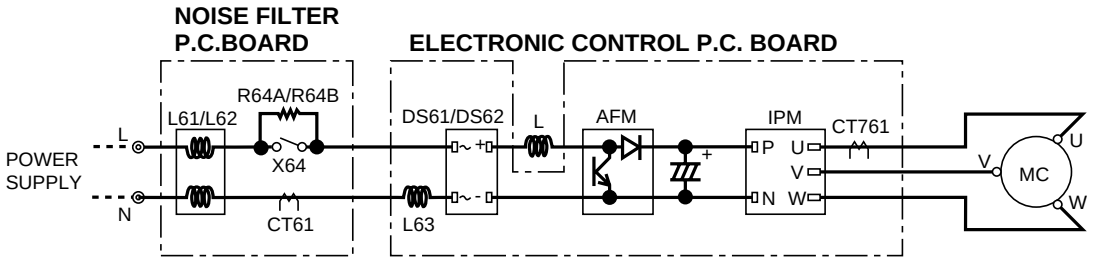
"–" means that the indoor unit is not related to the control of actuator.

11-11 INVERTER MULTI SYSTEM CONTROL

MXZ-18WV - E1



11-11-1. INVERTER MAIN POWER SUPPLY CIRCUIT



11-11-2. Outline of main power supply circuit

1. At the start of operation
   Rush current is generated the instant the electricity is turned on to the main power supply circuit to operate the compressor.
   To prevent the rush current from running into the main power supply circuit, R64A, R64B (Current-limiting resistor) absorbs the rush current.
   After the rush current is absorbed, X64 (Relay) is ON and the circuit to R is short-circuited, then the electricity to R is bypassed.
   When X64 is ON, the system starts the operation of compressor.

2. At normal operation
   The noise of alternating current of power supply is eliminated by L61, L62 (Common mode choke coil).
   Then DS61, DS62 (Diode stack) performs full-wave rectification of alternating current and the alternating current is converted to direct current.
   C61, C62 and C63 (Smoothing capacitor) stabilizes the power supply converted to direct current from alternating current and supplies it to IPM (Intelligent power module).
   Direct current rectified by DS61, DS62 is converted to three-phase alternating current by IPM.
   Microcomputer installed in the electronic control P.C. board controls frequency and voltage of three-phase alternating current converted by IPM.
   Three-phase alternating current is supplied from IPM to the compressor with frequency and voltage decided by microcomputer based on various kinds of information.
   CT61, CT761 (Current transformer) measures the current of main power supply circuit.

3. Power-factor improvement of power supply and harmonics control
   Although C61, C62, and C63 [smoothing capacitor] are used in this inverter circuit in order to supply direct-current stably, since the charge current to a capacitor turns into intermittent current in the stable circuit with only a capacitor, power factor of power supply gets worse and harmonics ingredient also becomes large.
   Then, AFM [active filter module] and L [reactor] have been arranged on direct-current circuit, and the improvement of power factor and generating of harmonics are controlled by bringing the intermittent current waveform of alternating power supply close to sine wave synchronized with the power supply voltage waveform. (Note 1)

Note 1: When short-circuited between plus and minus pole of direct-current circuit, alternating power supply current flows. By controlling time of short-circuiting to flow proper amount of current in the intermittent portion of alternating power supply current constantly, the current waveform of alternating power supply is brought close to sine wave.

4. Removal of electric noise
   Because of the noise filter circuit formed by L61 and L62 [CMC coil] and the capacitor on the noise filter board, the electric noise of the alternating power supply supplied to the main power supply circuit is removed.
   Moreover, common mode noise is absorbed with the above-mentioned noise filter, and the normal mode noise is absorbed in the noise filter circuit formed by L63 [NMC coil] and the capacitors [C650A, C650B, and C650C] on the control board so that the electric noise generated in the inverter circuit may not leak out.

5. IPM
Six power transistors that outputs the direct current waveform as three-phase alternating current waveform, the driving circuit which operates the power transistors, and the overcurrent detecting circuit which protects the power transistors are built into the IPM. It can simplify and miniaturize the control circuit.

6.AFM [Active Filter Module]
The circuit that detects power supply voltage waveform, the circuit that detects the current flowing in module, the switching element that short-circuits between plus and minus pole of direct-current circuit, and the switching element driving current are built into AFM.
The current waveform is automatically adjusted by controlling the interval of short-circuit between plus and minus pole of direct-current circuit so that the waveform of actual current flowing to service power supply is synchronized with the phase of power supply voltage waveform detected by AFM.

11-11-3. Function of main parts

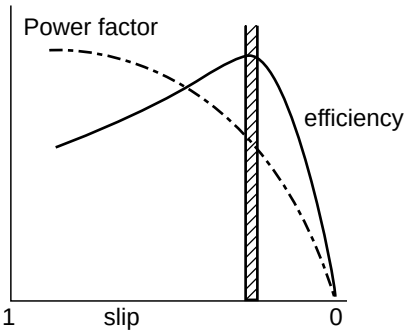
SYMBOL	NAME	FUNCTION
C61,C62, C63	SMOOTHING CAPACITOR	It stabilizes the direct current voltage.
CT61, CT761	CURRENT TRANSFORMER	It measures the current of main power supply circuit.
DS61, DS62	DIODE STACK	It converts the alternating current voltage to direct current voltage.
IPM	INTELLIGENT POWER MODULE	It generates three-phase alternating current and operates compressor.
L	REACTOR	It is combined with DS62 to improve the power factor of power supply.
L61, L62	COMMON MODE CHOKE COIL	It eliminates and absorbs the electrical noise.
L63	NORMAL MODE CH6KE COIL	
R	CURRENT-LIMITING RESISTOR	It absorbs the rush current not to run into the main power supply circuit when the electricity is turned on.
X64	RELAY	It short-circuits the circuit to current-limiting resistor when the compressor operates.

11-12. Optimal voltage control

The purpose of optimal voltage control is to operate the compressor at optimal voltage that meets the load detected by the power factor of the compressor.

1. Optimal

As shown on the right the efficiency (ratio of output against input) of the motor in the compressor becomes optimal when the sliding (ratio of difference between the actual number of rotation and the number of synchronous rotation of motor) is one fixed value. The value of sliding can be calculated from the power factor since the sliding and the power factor are mutually related as shown in the table on the right. To make the value of sliding so that the efficiency of motor is optimal, the power factor of the compressor is detected. Then the detected power factor is controlled so that its efficiency can be high. As a result, it is possible to operate the compressor at optimal voltage.



2. How to determine the optimal voltage

Compare the detected power factor with the target power factor so that the efficiency of motor is optimal, the voltage correction value is changed and the optimal output voltage is determined.
Optimal output voltage[V]= Standard voltage at certain frequency [V]x voltage correction value(%)

Target power factor minus detected power factor (Calculated value is supposed to be "A".)	Calculation of voltage correction value (%)
A≦-2%	Previous voltage correction value minus 1
-2%<A<+2%	Same as previous voltage correction value
A≧+2%	Previous voltage correction value plus 1

11-13 LEV control

Linear expansion valve (LEV) is controlled by "Thermostat ON" commands given from each unit.

Indoor unit status	LEV opening
Stop of all indoor unit	Opening before stop → 500 pulse in 15 minutes
When outdoor unit is operating, some indoor units stop and some operate.	COOL : 5 pulse (full closed) HEAT : 59 pulse (slightly opened)
Thermostat OFF in COOL or DRY mode	When the outdoor unit operates (When the other indoor unit operates): 5 pulse. When outdoor unit stops. (When the other indoor unit stops or thermo off): Maintain LEV opening before stop → 500 pulse in 15 minutes
Thermostat ON in COOL or DRY mode	• LEV opening for each indoor unit is determined by adding adjustment in accordance with the number of operating unit and the capacity class to standard opening, based on the operation frequency: Ex.) Opening 130 pulse in standard opening 1 → Minimum 80 pulse, Maximum 205 pulse. (Capacity code 4 at 1 unit operation) (Capacity code 1 at 4 units operation) • After starting operation, adjustment in accordance with intake super heat, discharge temperature is included in standard opening. ※1 Note: LEV opening in each frequency at DRY operation and COOL operation is the same. However, velocity and compressor operation frequency controls are different. See 11-2 Operational frequency range (As far as the indoor unit velocity control goes, refer to DRY operation in MICROPROCESSOR CONTROL in the indoor unit service manual.)
Thermostat OFF in HEAT mode	• When the outdoor unit operates. (When the other indoor unit operates): 59 pulse • When the outdoor unit stops. (When the other indoor unit stops or thermo off): Maintain LEV opening before stop → 500 pulse in 15 minutes.
Thermostat ON in HEAT mode	• LEV opening for each indoor unit is determined by adding adjustment in accordance with the number of operating unit and the capacity class to standard opening, based on the operation frequency: Ex.) Opening 120 pulse in standard opening 1 → Minimum 70 pulse, Maximum 165 pulse. (Capacity code 4 at 1 unit operation) (Capacity code 1 at 4 units operation) • After starting operation, opening becomes the one that adjustment in accordance with discharge temperature was added to basic opening. ※1

※1 LEV opening when the outdoor unit is operating: Upper limit 500 pulse, Lower limit 59 pulse.

Determination of LEV standard opening in each indoor unit

- The standard opening is on the straight line, which connects an each standard point in the section where divided into seven according to the operation frequency of compressor as shown in the figure below.
  (LEV opening is controlled in proportion to the operation frequency.)

Note: Opening is adjusted at the standard opening according to the indoor unit conditions.
However, inclination of standard opening in each point of opening does not change with the original curve.

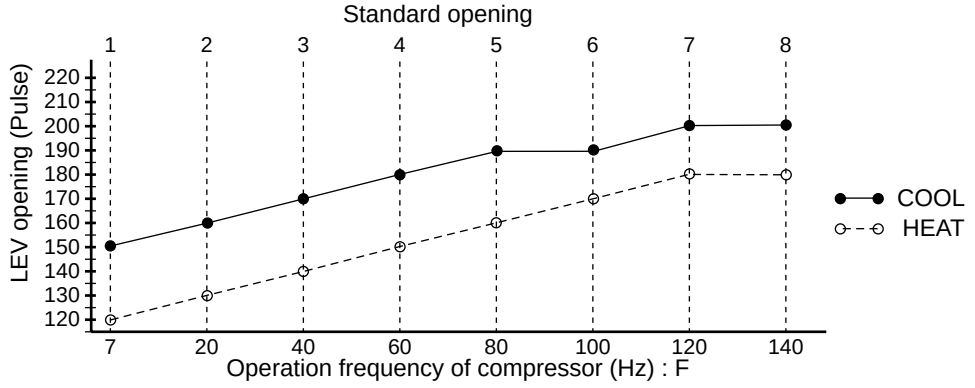
- Add opening provided in Difference in Capacity in the table below to the standard opening from 1 to 8, when capacity of the indoor unit is excluding code 1.
- Add opening provided in Difference in Operation number in the table below to determined LEV opening for each indoor unit, when 2, 3 or 4 indoor units are operated at the same time.

Note: Even when the adjusted standard opening exceeds the driving range from 59 to 500 pulse, actual driving output opening is in a range from 59 to 500 pulse.

< Calculation example of LEV opening >

Cool operation: Compressor frequency 70Hz: 2 units ON: 18 class

(170-150)÷(80-60)×(70-60)+150+75-30=205 pulse



	Standard opening (pulse)								Difference in capacity		Difference in operation number
	1	2	3	4	5	6	7	8	Code2	Code3	2
COOL	200	210	220	230	240	240	250	250	25	50	-60
HEAT	160	170	180	190	200	210	210	220	20	40	-70

Capacity code	1	2	3	4
Indoor unit	07	09	12	18

<Correction>

	COOL	DRY	HEAT
① Suction super heat (MIN gas pipe temperature thermistor - Evaporation temperature thermistor)	●	●	—
② Each correction ※ 1 • (Each gas pipe temperature thermistor - Evaporation temperature thermistor)			
③ Discharge temperature	● ※ 2	● ※ 2	●

※ 1 Perform this, when number of operation units is 2 units or more.
※ 2 When the correction opening of suction super heat is 0, correct the LEV opening by discharge temperature.

(1) LEV opening correction by suction super heat (COOL, DRY)
(Suction super heat) = (Minimum gas pipe temperature) - (Evaporation temperature)
When COOL and DRY, correct the LEV openings corrected from the table below.

Suction superheat (S.H.)	LEV opening correction (pulse)
more than 12	7
10 to12	5
8 to 10	4
6 to 8	3
6 or less	0

(2) Separate correction (COOL,DRY)
(When number of operation unit is 2 units)
(a) Correction by the separate super heat
Correct the LEV separately by temperature difference between each gas pipe temperature thermistor and evaporator temperature thermistor.
① Calculate each super heat of the unit from the expression below;
(Super heat) = (Each gas pipe temperature) - (Minimum gas pipe temperature)
② Separate correction is performed according to each super heat in the table below.

Superheat	LEV opening correction (pulse)
more than 9	10
6 to9	8
3to 6	4
6 or less	0

(3) LEV opening correction by discharge temperature

When LEV correction output is 0 pulse by the suction super heat at COOL or DRY operation, or HEAT operating, correct LEV is corrected according to the following table.

The target discharge temperature is determined according to frequency zone and number of operation unit of the compressor.

Operation frequency of compressor	LEV opening correction (pulse)			
	COOL, DRY		HEAT	
	Number of operating unit		Number of operating unit	
	Single	Double	Single	Double
Minimum ~ 20	40	40	45	45
21 ~ 33	40	40	50	50
34 ~ 46	45	45	55	55
47 ~ 59	52	52	60	60
60 ~ 72	62	62	65	65
73 ~ 85	67	67	70	70
86 ~ 98	72	72	70	70
97 ~ 111	75	75	75	75
111 ~ Maximum	80	80	76	76

Correct the LEV opening according to the difference between target discharge temperature and discharge temperature.

Discharge temperature (℃)	LEV opening correction (pulse)	
	COOL	HEAT
More than Target discharge temperature+11	10	8
Target discharge temperature+11 to Target discharge temperature+8	4	2
Target discharge temperature+8 to Target discharge temperature+5	2	1
Target discharge temperature+5 to Target discharge temperature+2	1	1
Target discharge temperature+2 to Target discharge temperature-2	0	0
Target discharge temperature-2 to Target discharge temperature-5	-1	-1
Target discharge temperature-5 to Target discharge temperature-8	-2	-1
Target discharge temperature-8 to Target discharge temperature-11	-5	-2
Target discharge temperature-11 or less	-8	-6

11-14.Operational frequency range

Number of operating unit	capacity code	COOL (Hz)			DRY (Hz)	HEAT (Hz)			
		Min.	Max.	Rated		Min.	Max.	Defrost	Rated
1	1	25	76	55	27	25	100	120	72
	2		90	61	41		100	120	76
	3		100	85	53		122	120	88
2	2 3 4 5 6 7	40	120	110	72	43	122	120	120

Note: When the fan speed of indoor unit is totally Low notch, the maximum frequency is rated frequency.

11-15.Heat defrosting control

(1) Conditions to enter defrosting mode

①. When temperature of defrosting thermistor is -3℃ or less.

②.When specified non-defrosting time, is counted in the control p.c.board is satisfied.
(Total time of compressor operating)

Going to defrosting mode at both condition of ① and ②.

(2) Defrosting operation

①. Compressor stops for 50 seconds, Indoor fan is off, Defrosting lamp lights.

②.4-way valve reverses flow, Compressor operates by the frequency in heat defrosting control.

③. After compressor stops for 35 seconds, 4-way valve reverses flow, then defrosting finishes.

(3) Conditions to finish defrosting mode

①. When the defrosting thermistor temperature is 13.2℃ or more.

②. When it has spent 10 minutes for defrosting.

Defrosting finishes at condition of ① or ②.

11-16.Discharge temperature protection control

This protection controls the compressor ON/OFF and operation frequency according to temperature of the discharge temp. thermistor.

(1) Compressor ON/OFF

When temperature of the discharge temp. thermistor exceeds 116℃, the control stops the compressor.
When temperature of the discharge temp. thermistor is 80℃ or less, the controls starts the compressor.

(2) Compressor operation frequency

When temperature of the discharge temp. thermistor is expected to be higher than 116℃, the control decreases 12Hz from the current frequency.
When temperature of the discharge temp. thermistor is expected to be higher than 111℃ and less than 116℃, the control decreases 6Hz from the current frequency.
When temperature of the discharge temp. thermistor is expected to be higher than 104℃ and less than 111℃, the control is set at the current frequency.

11-17.Refrigerant recovery control on heating

<Control status>

The control performs when the all the following status are satisfied;

- When one or more indoor units are operating in HEAT mode. (Excluding thermostat OFF)
- When discharge temperature becomes 107℃ or more.
- When it passed 60 minutes or more since the operation has started or the last refrigerant recovery has controlled.

<Control details>

LEV opening of indoor unit not operating is controlled to be 80 pulse.

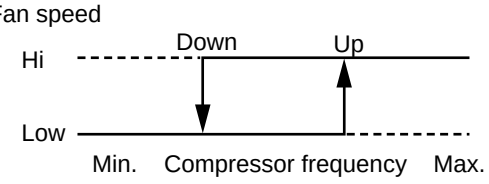
<Control finish status>

The control finishes either as follows. However, the LEV opening is considered to be 59 pulse.

- When it passed 60 seconds since the control has started.
- When the discharge temperature is 90℃ or less.

11-18.Outdoor fan control

Fan speed is switched according to the number of operating indoor unit and the compressor frequency.



<Relation between compressor frequency and fan speed.>

Mode	Fan speed	Indoor unit operation	
		Single	Double
COOL	Up	60Hz	60Hz
	Down	50Hz	50Hz
HEAT	Up	60Hz	60Hz
	Down	50Hz	50Hz

Note

- When the indoor coil thermistor is 57℃ or more on HEAT operation, fan speed is fixed to Low notch. Or, the indoor coil thermistor is 45℃ or less on HEAT operation, fan speed is back to normal.

11-19.Relation between main sensor and actuator

Relation between main sensor and actuator.

Sensor	Purpose	Actuator			
		Compressor	LEV	Outdoor fan motor	Reversing valve
Discharge temperature thermistor	Protection	○	○		
Indoor pipe temperature thermistor	Defrosting Protection	○	○	○	
Defrost thermistor	Defrosting	○	○		○
Evaporation temperature thermistor	Control		○		
Gas pipe temperature thermistor	Control		○		
Fin temperature thermistor	Protection	○		○	
High-pressure protect thermistor	Protection	○			
Capacity code	Control	○	○	○	

12 SERVICE FUNCTIONS

MSC-A07WV -E1 MU-A07WV -E1 MUH-A07WV -E1 MUX-A10WV -E1 MUX-A25WV -E1
MSC-A09WV -E1 MU-A09WV -E1 MUH-A09WV -E1 MUX-A19WV -E1 MUX-A26WV -E1
MSC-A12WV -E1 MU-A12WV -E1 MUH-A12WV -E1 MUX-A20WV -E1 MXZ-A18WV -E1

12-1. COMPULSORY DEFROSTING MODE FOR SERVICE <MUH-A07/A09/A12WV>

By short circuit of the connector JPDS and JPSG on the outdoor deicer P.C. board, defrosting mode can be accomplished regardless of the defrost interval restriction. (See page 125.)
Defrost thermistor RT61 must read below -3°C.

12-2. CHANGE IN DEFROST SETTING <MUH-A07/A09/A12WV>

<JRF> When the JRF wire of the deicer P.C. board is cut, the defrost interval time will be changed. (See page 125.)
<JRG> When the JRG wire of the deicer P.C. board is cut, the defrost temperature will be changed. (See page 125.)

MODEL	Jumper wire	Change point
MUH-A07WV -E1 **MUH-A09WV -E1**	**JRF**	**Defrost interval time changes from 40 minutes to 15 minutes**
MUH-A12WV -E1	**JRG**	**Deforst start temperature changes from -3℃ to 0℃** **Deforst finish temperature changes from 3.1℃ to 10.1℃.**

Note: MXZ-A18WV is not equipped with the system to change the setting of defrosting. The unit has been set to perform more effective defrosting than conventional models, so it is not necessary to change the setting even in the area where frost forms easily. Refer to page 100, **11-15. Heat defrosting control**, for defrosting control.

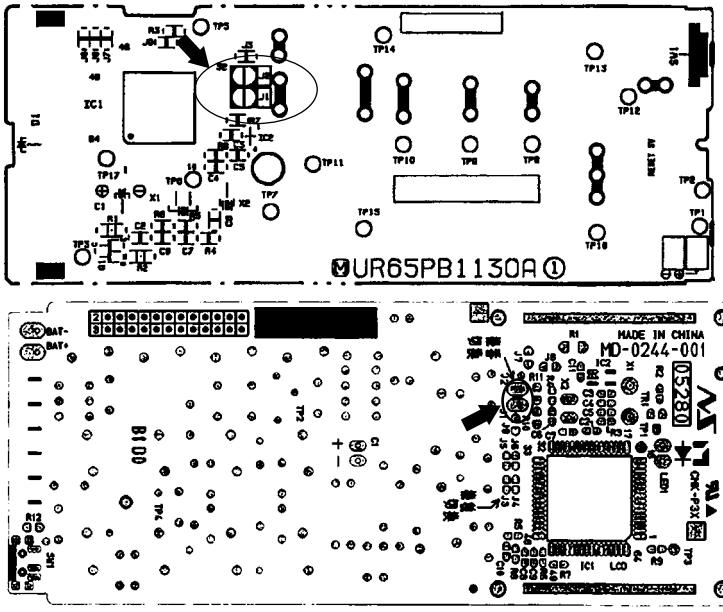
12-3. TIMER SHORT MODE

For service, set time can be shortened by short circuit of JPG and JPS the electronic control P.C. board.
The time will be shortened as follows. (Refer to page 124.)
Set time : 1 minute → 1-second
Set time : 3 minutes → 3-second (It takes 3 minutes for the compressor to start operation. However, the starting time is shortened by short circuit of JPG and JPS.)

12-4. P.C. BOARD MODIFICATION FOR INDIVIDUAL OPERATION

A maximum of 4 indoor units with wireless remote controllers can be used in a room.
In this case, to operate each indoor unit individually by each remote controller, P.C. boards of remote controller must be modified according to the number of the indoor unit.

How to modify the remote controller P.C. board
Remove batteries before modification. The board has a print as shown below :



NOTE : For remodelling, take out the batteries and push the OPERATE/STOP(ON/OFF) button twice or 3 times at first.
After finish remodelling, put back the batteries then press the RESET button.

The P.C. board has the print “J1” and “J2”. Solder “J1” and “J2” according to the number of indoor unit as shown in Table 1.
After modification, press the RESET button.

Table 1

	1 unit operation	2 units operation	3 units operation	4 units operation
No. 1 unit	No modification	Same as at left	Same as at left	Same as at left
No. 2 unit	–	Solder J1	Same as at left	Same as at left
No. 3 unit	–	–	Solder J2	Same as at left
No. 4 unit	–	–	–	Solder both J1 and J2

How to set the remote controller exclusively for particular indoor unit

After you turn the breaker ON, the first remote controller that sends the signal to the indoor unit will be regarded as the remote controller for the indoor unit.

The indoor unit will only accepts the signal from the remote controller that has been assigned to the indoor unit once they are set.

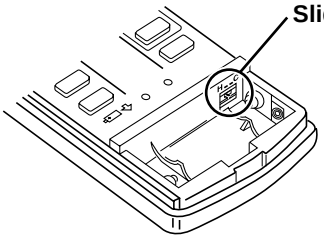
The setting will be cancelled if the breaker has turned off, or the power supply has shut down.

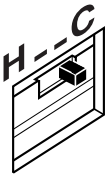
Please conduct the above setting once again after the power has restored.

12-5. REMOTE CONTROLLER (How to set the type)

This remote controller setting needs to be switched according to the type of air conditioner (COOL & HEAT or COOL ONLY).

If the setting is incorrect, the air conditioner does not operate normally. Therefore, check if the setting corresponds to the type of air conditioner. If not, correct the setting as shown below.



Type	COOL & HEAT	COOL ONLY
The position of the slide switch		

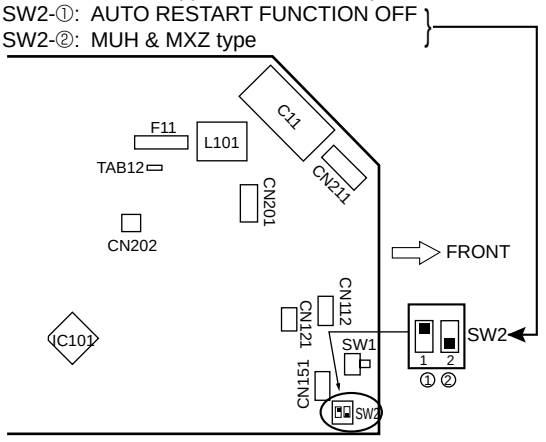
12-6. MU & MUXTYPE/MUH & MXZ TYPE SWITCH OVER AND AUTO RESTART FUNCTION

1. MU & MUX TYPE/MUH & MXZ TYPE SWITCH OVER

The indoor units for MU & MUX type and MUH & MXZ type are common specifications. Set switch according to the type of outdoor unit. The units are set for MUH & MXZ type when they are shipped from the factory.

SW2-① sets the AUTO RESTART FUNCTION ON / OFF.
SW2-② switches over the MU &MUX type/ MUH & MXZtype.

When the units are shipped from the factory, SW2 is as follows.
SW2-①: AUTO RESTART FUNCTION OFF
SW2-②: MUH & MXZ type

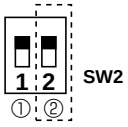


How to switch over MU & MUX TYPE/MUH & MXZ TYPE

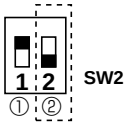
(1) Turn off the main power for the unit.

(2) Pull out the electronic control P.C. board, and change switch(SW2-②) on the indoor electronic control P.C. board according to the type of outdoor unit as following figures.

Outdoor unit
MU & MUX type
Set ② switch upside.



Outdoor unit
MUH & MXZ type
Set ② switch downside.



NOTE: •If the indoor-outdoor connecting wire is incorrectly connected on the terminal block, the unit does not operate normally.
•If a ground is incorrect, it may cause an electric shock.

2. AUTO RESTART FUNCTION

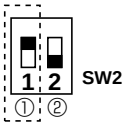
When the indoor unit is controlled with the remote controller, the operation mode, set temperature, and the fan speed are memorized by the indoor electronic control P.C.board. The “AUTO RESTART FUNCTION” sets to work the moment power has restored after power failure.Then, the unit will restart automatically. However if the unit is operated in “I FEEL CONTROL” mode before power failure, the operation is not memorized. In “I FEEL CONTROL” mode, the operation is decided by the initial room temperature. “AUTO RESTART FUNCTION” is OFF when the units are shipped from the factory.

How to set “AUTO RESTART FUNCTION”

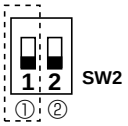
(1) Turn off the main power for the unit.

(2) Pull out the electronic control P.C. board, and change switch(SW2-①) on the indoor electronic control P.C. board as following figures.

AUTO RESTART FUNCTION OFF
Set ① switch upside.



AUTO RESTART FUNCTION ON
Set ① switch downside.



Operation

(1) If the main power (230V AC) has been cut, the operation settings remain.

(2) After the power is restored, the unit restarts automatically according to the memory. (However, it takes at least 3 minutes for the compressor to start running.)

NOTE

- The operation settings are memorized when 10 seconds have passed after the remote controller was operated.
- If main power is cut while AUTO START/STOP timer is active, the timer setting is cancelled.
- If the unit has been off with the remote controller before power failure, the auto restart function does not work as the power button of the remote controller is off.
- To prevent breaker off due to the rush of starting current, systematize other home appliance not to turn on at the same time.
- When some air conditioners are connected to the same supply system, if they are operated before power failure, the starting current of all the compressors may flow simultaneously at restart.
  Therefore, the special counter-measures are required to prevent the main voltage-drop or the rush of the starting current by adding system that allows the units to start one by one.

13 TROUBLESHOOTING

MSC-A07WV -E1 MU-A07WV -E1 MUH-A07WV -E1 MUX-A10WV -E1 MUX-A25WV -E1
MSC-A09WV -E1 MU-A09WV -E1 MUH-A09WV -E1 MUX-A19WV -E1 MUX-A26WV -E1
MSC-A12WV -E1 MU-A12WV -E1 MUH-A12WV -E1 MUX-A20WV -E1

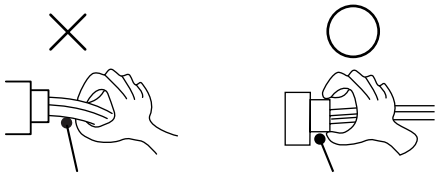
13-1. Cautions on troubleshooting

1. Before troubleshooting, check the following:

1) Check the power supply voltage.
2) Check the indoor/outdoor connecting wire for mis-wiring.

2. Take care the following during servicing.

1) Before servicing the air conditioner, be sure to first turn off the remote controller to stop the unit, and then after confirming the horizontal vane is closed, turn off the breaker and/or disconnect the power plug.
2) Be sure to turn OFF the power supply before removing the front panel, the cabinet, the top panel, and the electronic control P.C. board.
3) When removing the electronic control P.C. board, hold the edge of the board with care NOT to apply stress on the components.
4) When connecting or disconnecting the connectors, hold the housing of the connector. DO NOT pull the lead wires.



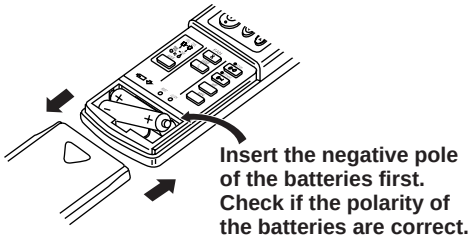
3. Troubleshooting procedure

1) First, check if the OPERATION INDICATOR lamp on the indoor unit is flashing on and off to indicate an abnormality. To make sure, check how many times the abnormality indication is flashing on and off before starting service work.
2) If the electronic control P.C. board is supposed to be defective, check the copper foil pattern for disconnection and the components for bursting and discoloration.
3) When troubleshooting, refer to the flow chart on page 105, 106 and the check table on page 107 ~ 109.

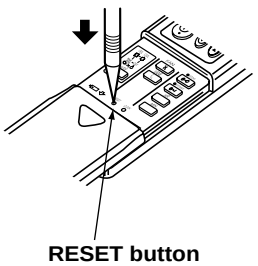
4. How to replace batteries

Weak batteries may cause the remote controller malfunction.
In this case, replace the batteries to operate the remote controller normally.

① Remove the front lid and insert batteries.
Then reattach the front lid.



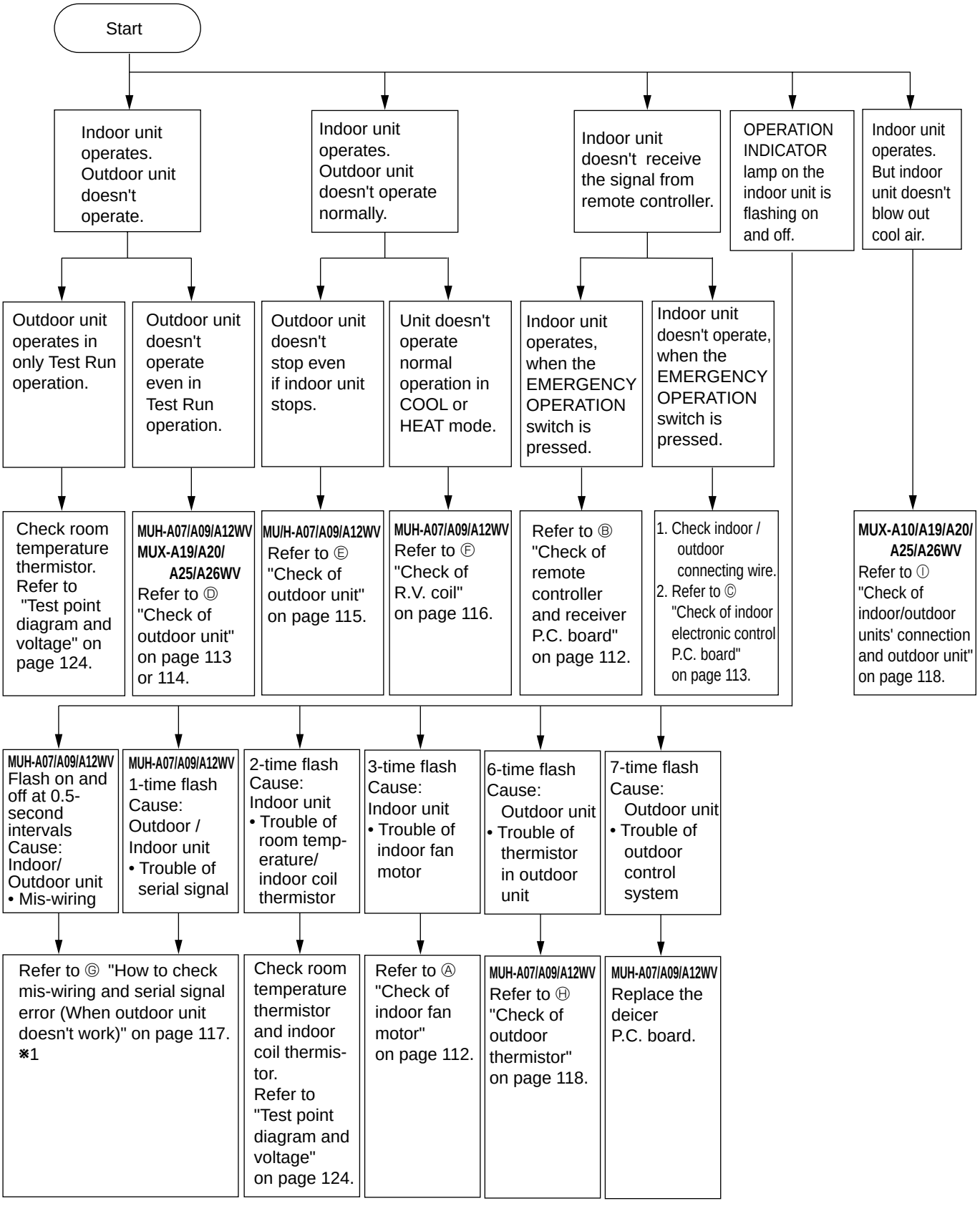
② Press the RESET button.



NOTE : If the RESET button is not pressed, the remote controller may not operate correctly.

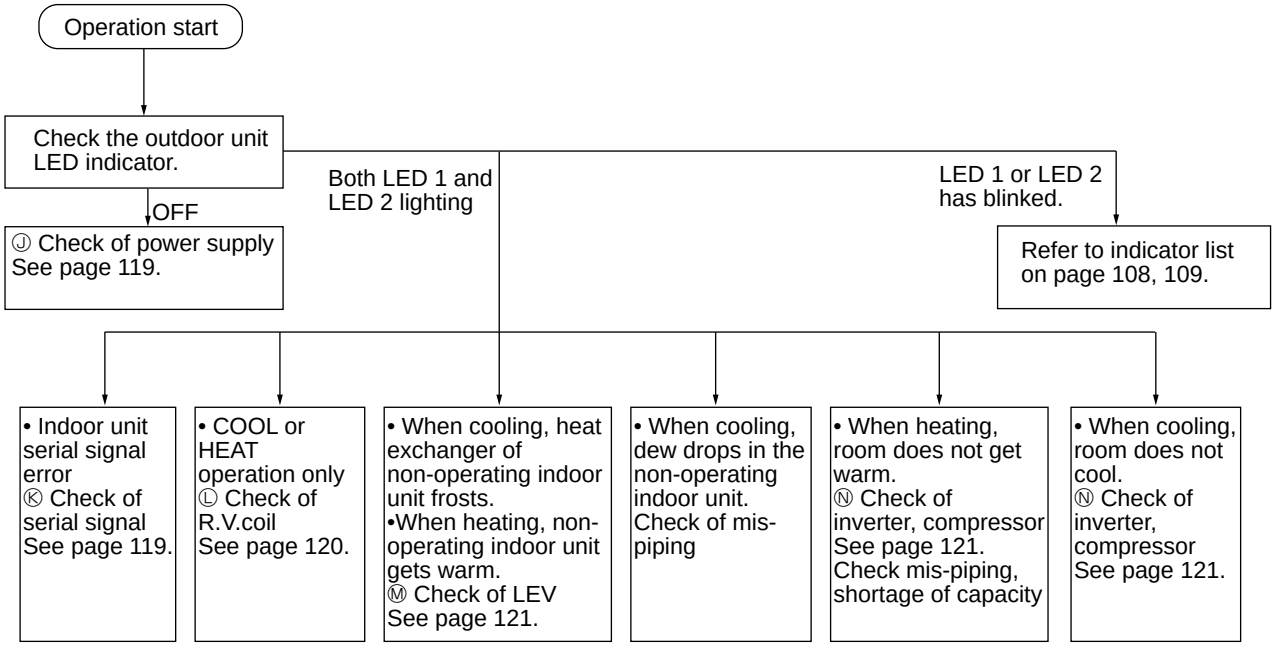
13-2. Instruction of troubleshooting

MSC-A07WV -E1 MU-A07WV -E1 MUH-A07WV -E1 MUX-A10WV -E1 MUX-A25WV -E1
MSC-A09WV -E1 MU-A09WV -E1 MUH-A09WV -E1 MUX-A19WV -E1 MUX-A26WV -E1
MSC-A12WV -E1 MU-A12WV -E1 MUH-A12WV -E1 MUX-A20WV -E1


Start
Indoor unit operates. Outdoor unit doesn't operate.
Indoor unit operates. Outdoor unit doesn't operate normally.
Indoor unit doesn't receive the signal from remote controller.
OPERATION INDICATOR lamp on the indoor unit is flashing on and off.
Indoor unit operates. But indoor unit doesn't blow out cool air.
Outdoor unit operates in only Test Run operation.
Outdoor unit doesn't operate even in Test Run operation.
Outdoor unit doesn't stop even if indoor unit stops.
Unit doesn't operate normal operation in COOL or HEAT mode.
Indoor unit operates, when the EMERGENCY OPERATION switch is pressed.
Indoor unit doesn't operate, when the EMERGENCY OPERATION switch is pressed.
Check room temperature thermistor. Refer to "Test point diagram and voltage" on page 124.
MUH-A07/A09/A12WV MUX-A19/A20/A25/A26WV Refer to Ⓓ "Check of outdoor unit" on page 113 or 114.
MU/H-A07/A09/A12WV Refer to Ⓔ "Check of outdoor unit" on page 115.
MUH-A07/A09/A12WV Refer to Ⓕ "Check of R.V. coil" on page 116.
Refer to Ⓑ "Check of remote controller and receiver P.C. board" on page 112.
1. Check indoor / outdoor connecting wire.
2. Refer to Ⓒ "Check of indoor electronic control P.C. board" on page 113.
MUX-A10/A19/A20/A25/A26WV Refer to Ⓘ "Check of indoor/outdoor units' connection and outdoor unit" on page 118.
MUH-A07/A09/A12WV Flash on and off at 0.5-second intervals Cause: Indoor/ Outdoor unit • Mis-wiring
MUH-A07/A09/A12WV 1-time flash Cause: Outdoor / Indoor unit • Trouble of serial signal
2-time flash Cause: Indoor unit • Trouble of room temperature/ indoor coil thermistor
3-time flash Cause: Indoor unit • Trouble of indoor fan motor
6-time flash Cause: Outdoor unit • Trouble of thermistor in outdoor unit
7-time flash Cause: Outdoor unit • Trouble of outdoor control system
Refer to Ⓖ "How to check mis-wiring and serial signal error (When outdoor unit doesn't work)" on page 117. ※1
Check room temperature thermistor and indoor coil thermistor. Refer to "Test point diagram and voltage" on page 124.
Refer to Ⓐ "Check of indoor fan motor" on page 112.
MUH-A07/A09/A12WV Refer to Ⓗ "Check of outdoor thermistor" on page 118.
MUH-A07/A09/A12WV Replace the deicer P.C. board.

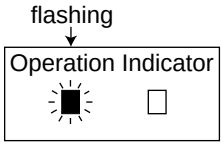
※1.<The case of the trouble of the serial signal>
When the power is turned off and then turned on again, the indication shows “the trouble of mis-wiring”.

MXZ-A18WV - E1


Operation start
Check the outdoor unit LED indicator.
OFF
Ⓙ Check of power supply
See page 119.
Both LED 1 and LED 2 lighting
LED 1 or LED 2 has blinked.
Refer to indicator list on page 108, 109.
• Indoor unit serial signal error
Ⓚ Check of serial signal
See page 119.
• COOL or HEAT operation only
Ⓛ Check of R.V.coil
See page 120.
• When cooling, heat exchanger of non-operating indoor unit frosts.
•When heating, non-operating indoor unit gets warm.
Ⓜ Check of LEV
See page 121.
• When cooling, dew drops in the non-operating indoor unit.
Check of mis-piping
• When heating, room does not get warm.
Ⓝ Check of inverter, compressor
See page 121.
Check mis-piping, shortage of capacity
• When cooling, room does not cool.
Ⓝ Check of inverter, compressor
See page 121.

13-3. Troubleshooting check table

• The following indication does not depend on the shape of lamp.



· Flashing of the OPERATION INDICATOR lamp (on the left-hand side) indicates possible abnormalities.
· The OPERATION INDICATOR lamp (on the left-hand side) is lighting during normal operation.

❋ Before taking measures, make sure that the symptom reappears, for accurate troubleshooting.

Self check table

NO.	Abnormal point	Indication	Symptom	Detect method	Check point
1	**MUH type** Mis-wiring	0.5-second ON 0.5-second OFF	Outdoor unit does not run.	When serial signal stops for 4 to 5 seconds after 1st on of 52C relay by POWER turning on.	● Check switch SW2-②.(MU type or MUH type) ● Check wiring (visual check and conductivity check). ● Check indoor electronic control P.C.board. ● Check outdoor DEICER P.C. board. ● Check electrical parts.
	MUH type Serial signal	1-time flash 2.5-second OFF		When serial signal from outdoor unit stops for 4 to 5 seconds.	
2	Indoor coil thermistor Room temperature thermistor	2-time flash 2.5-second OFF	Outdoor unit does not run.	Detect Indoor coil/room temperature thermistor short or open circuit every 8 seconds during operation.	● Check resistance of thermistor. ● Reconnect connector. ● Check indoor electronic control P.C.board.
3	Indoor fan motor	3-time flash 2.5-second OFF	Indoor fan motor repeats 12 seconds ON and 3 minutes OFF. When the indoor fan motor breaks, the fan keeps stopping.	When rotational frequency feedback pulse signal is not emit during 12-second indoor fan operation.	● Disconnect connector CN211 and then check connector CN121②-③to make sure rotational frequency feedback signal of 1.5V or over exists. ● Check indoor electronic control P.C. board. ● Check indoor fan motor. ● Reconnect connector.
4	**MUH type** Defrost thermistor	6-time flash 2.5-second OFF	Outdoor unit does not run.	When the defrost thermistor shorts or opens after the compressor start-up.	● Check outdoor DEICER P.C. board.(MUH) ● Check resistance of thermistor. ● Reconnect connector.
5	**MUH type** Out door control system error	7-time flash 2.5-second OFF	Outdoor unit does not run.	When it cannot properly read data in the nonvolatile memory of outdoor electronic control P.C. board.	● Check outdoor control P.C. board.

MXZ-A18WV - E1

<OUTDOOR UNIT>

LED 1 (Red)	LED 2 (Yellow)	Error mode
Lighting	Lighting	Normal

Symptom: Outdoor unit does not operate.				
Indication		Abnormal point	Detecting method	Check points
LED 1 (Red)	LED 2 (Yellow)			
Lighting	Once	Indoor unit and LEV	When the drain abnormality is detected in the indoor unit and the indoor unit coil temperature is too low, or when any abnormality is detected in the components of indoor unit.	• Check the abnormality indication on the indoor unit. • Check the LEV.
Lighting	Twice	Outdoor power system	When the compressor operation has been interrupted by over current protection continuously three times within 1 minute after start-up.	• Check the inverter/compressor.
Lighting	7 times	Outdoor control system	When the nonvolatile memory data cannot be read properly on the outdoor electronic control P.C. board.	• Replace the outdoor electronic control P.C. board.
Lighting	8 times	Active filter module	When active filter module self-protection has been performed continuously three times.	• Replace the outdoor electronic control P.C. board.
Lighting	9 times	DC voltage sensing circuit	When DC voltage sensing circuit detects 57V or below or 395V or above.	• Replace the outdoor electronic control P.C. board.

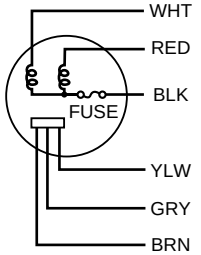
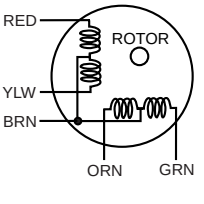
Symptom: Outdoor unit repeats to stop and restart in 3 minutes				
Indication		Abnormal point	Detecting method	Check points
LED 1 (Red)	LED 2 (Yellow)			
Lighting	3 times	Discharge temperature thermistor	When a short or open circuit occurs in the discharge temperature thermistor during compressor running.	• Check the characteristic of the discharge temperature thermistor. • Check the connector. (CN662)
Lighting	4 times	Fin temperature thermistor	When a short or open circuit occurs in the fin temperature thermistor during compressor running.	• Check the characteristic of the fin temperature thermistor. • Check the connector. (CN663)
		P.C. board temperature thermistor	When a short or open circuit occurs in the P.C. board temperature thermistor during compressor running.	• Replace the outdoor electronic control P.C. board.
Lighting	5 times	Evaporation temperature thermistor	When a short or open circuit occurs in the evaporation temperature thermistor during compressor running.	• Check the characteristic of the evaporation temperature thermistor. • Check the connector. (CN662)
Lighting	5 times	High pressure protect thermistor	When high pressure protect thermistor is short or open while compressor is operating.	• Check the characteristic of the high pressure protect thermistor. • Check the connector. (CN662)
Lighting	10 times	Gas pipe temperature A thermistor	When a short or open circuit occurs in the gas pipe temperature A thermistor during compressor running.	• Check the characteristic of the gas pipe temperature A thermistor. • Check the connector. (CN661)
		Gas pipe temperature B thermistor	When a short or open circuit occurs in the gas pipe temperature B thermistor during compressor running.	• Check the characteristic of the gas pipe temperature B thermistor. • Check the connector. (CN661)
Twice	Goes out	Over current protection	When over current is applied to the power module.	• Check the inverter/compressor. • Check the amount of gas. • Check the indoor/outdoor air flow for short cycle. • Check the indoor unit air filter for clogging.
3 times	Goes out	Discharge temperature overheat protection	When the discharge temperature thermistor detects 116℃ or above. (Protection will be released at 100℃ or below.)	• Check the amount of gas and the refrigerant cycle. • Check the outdoor unit air passage.
4 times	Goes out	Fin temperature overheat protection	When the fin temperature thermistor detects 87℃ or above.	• Check the outdoor unit air passage. • Check the outdoor fan motor. • Check the power module.
4 times	Goes out	P.C. board temperature overheat protection	When the P.C. board temperature thermistor detects 70℃ or above.	• Check the outdoor unit air passage. • Check the outdoor fan motor. • Replace the outdoor electronic control P.C. board.
5 times	Goes out	High pressure protection	When high pressure protect thermistor detects 69℃ or more.	• Check the outdoor unit air passage. • Check the outdoor fan motor.

Symptom: Outdoor unit operates (The compressor operates at reduced frequency)				
Indication		Abnormal point	Detecting method	Check points
LED 1 (Red)	LED 2 (Yellow)			
Once	Lighting	Current protection	When the outdoor unit input current exceeds 13A.	These symptoms do not mean any abnormality of the product, but check the following points. • Air filter clogging. • Amount of gas. • Short cycle of indoor/outdoor air flow.
Twice	Lighting	High pressure protection	When indoor pipe temperature exceeds 55˚C during heating.	
Twice	Lighting	Defrosting in cooling	When indoor pipe temperature falls to 6˚C or below during cooling.	
3 times	Lighting	Discharge temperature protection	When the discharge temperature exceeds 104˚C.	
4 times	Lighting	Low discharge temperature protection	When the state with low discharge temperature of which 37˚C or below in COOL and 35˚C or below in HEAT for 20 minutes.	
5 times	Lighting	High pressure protection	When high pressure protect thermistor detects 58℃ or more.	
6 times	Lighting	Overload protection	When the compressor load exceeds the specified value.	

Symptom: Outdoor unit operates.				
Indication		Abnormal point	Detecting method	Check points
LED 1 (Red)	LED 2 (Yellow)			
Lighting	5 times	Defrost thermistor	When a short or open circuit occurs in the defrost thermistor during heating.	• Check the characteristic of the defrost temperature thermistor. • Check the connector. (CN662)
Lighting	6 times	Power factor detection	When the compressor power factor cannot be detected.	• Check the compressor wiring.
Lighting	8 times	Active filter module protection	When active filter module self-protection has been performed.	
Lighting	9 times	Service mode	When operating unit with compressor relay connector disconnected.	

13-4. Trouble criterion of main parts

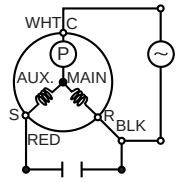
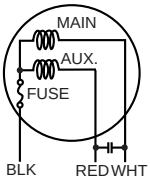
MSC-A07WV - E1
MSC-A09WV - E1
MSC-A12WV - E1

<table>
<tr><th>Part name</th><th colspan="2">Check method and criterion</th><th>Figure</th></tr>
<tr><td>Room temperature thermistor (RT11)
Indoor coil thermistor (RT12)</td><td colspan="2">Measure the resistance with a tester.
(Part temperature 10°C ~ 30°C)<table><tr><th>Normal</th><th>Abnormal</th></tr><tr><td>MSC-A07/A09/A12WV
8kΩ ~ 20kΩ</td><td>Open or short-circuit</td></tr></table></td><td></td></tr>
<tr><td rowspan="2">Indoor fan motor (MF)
INNER FUSE
136±3°C
CUT OFF</td><td>Motor part</td><td>Measure the resistance between the terminals with a tester.
(Coil wiring temperature10°C ~ 30°C)<table><tr><th rowspan="2">Color of lead wire</th><th colspan="2">Normal</th><th rowspan="2">Abnormal</th></tr><tr><th>MSC-A07/A09WV</th><th>MSC-A12WV</th></tr><tr><td>WHT-BLK</td><td>396 ~ 430Ω</td><td>303 ~ 329Ω</td><td rowspan="2">Open or short-circuit</td></tr><tr><td>BLK-RED</td><td>320 ~ 348Ω</td><td>287 ~ 311Ω</td></tr></table></td><td rowspan="2"> 
</td></tr>
<tr><td>Sensor part</td><td>Measure the voltage Power ON.<table><tr><th rowspan="2">Color of lead wire</th><th>Normal</th><th rowspan="2">Abnormal</th></tr><tr><th>MSC-A07/A09/A12WV</th></tr><tr><td>BRN-YLW</td><td>4.5 ~ 5.5V</td><td rowspan="2">Remain 0V or 5V</td></tr><tr><td>YLW-GRY</td><td>(When fan revolved one time)
0V→5V→0V
(Approx.)</td></tr></table></td></tr>
<tr><td>Vane motor (MV)</td><td colspan="2">Measure the resistance between the terminals with a tester.
(Part temperature10°C ~ 30°C)<table><tr><th>Normal</th><th>Abnormal</th></tr><tr><td>MSC-A07/A09/A12WV
240 ~ 260Ω</td><td>Open or short-circuit</td></tr></table></td><td> 
</td></tr>
</table>

MU-A07WV -E1 MUH-A07WV -E1
MU-A09WV -E1 MUH-A09WV -E1
MU-A12WV -E1 MUH-A12WV -E1

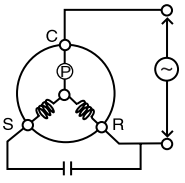
<table>
<tr><th>Part name</th><th>Check method and criterion</th><th>Figure</th></tr>
<tr><td>Defrost thermistor (RT63)

<MUH-A07/A09/A12WV></td><td>Measure the resistance with a tester.
(Part temperature –10°C ~ 40°C)
<table>
<tr><th>Normal</th><th>Abnormal</th></tr>
<tr><td>MUH-A07/A09/A12WV</td><td rowspan="2">Open or short-circuit</td></tr>
<tr><td>5kΩ ~ 60kΩ</td></tr>
</table></td><td></td></tr>
<tr><td>Compressor (MC)
INNER PROTECTOR
MU-A07/A09WV
MUH-A07/A09WV
150± 5°C OPEN
90±10°C CLOSE

MU-A12WV
MUH-A12WV
155± 5°C OPEN
90±10°C CLOSE</td><td>Measure the resistance between the terminals with a tester.
(Coil wiring temperature –10°C ~ 40°C)
<table>
<tr><th></th><th colspan="3">Normal</th><th>Abnormal</th></tr>
<tr><th></th><th>MU-A07WV</th><th>MU-A09WV</th><th>MU-A12WV</th><th></th></tr>
<tr><td>C-R</td><td>3.41~4.18Ω</td><td>2.99~3.67Ω</td><td>2.46~3.01Ω</td><td rowspan="2">Open or short-circuit</td></tr>
<tr><td>C-S</td><td>5.41~6.63Ω</td><td>4.02~4.92Ω</td><td>2.96~3.63Ω</td></tr>
</table>
<table>
<tr><th></th><th colspan="3">Normal</th><th>Abnormal</th></tr>
<tr><th></th><th>MUH-A07WV</th><th>MUH-A09WV</th><th>MUH-A12WV</th><th></th></tr>
<tr><td>C-R</td><td>3.41~4.18Ω</td><td>2.99~3.67Ω</td><td>2.46~3.01Ω</td><td rowspan="2">Open or short-circuit</td></tr>
<tr><td>C-S</td><td>5.41~6.63Ω</td><td>4.02~4.92Ω</td><td>2.96~3.63Ω</td></tr>
</table></td><td> 
</td></tr>
<tr><td>Outdoor fan motor INNER (MF)
INNER FUSE
163±$^{3}_{2}$°C
CUT OFF</td><td>Measure the resistance between the terminals with a tester.
(Coil wiring temperature –10°C ~ 40°C)
<table>
<tr><th rowspan="2">Color of lead wire</th><th colspan="2">Normal</th><th rowspan="2">Abnormal</th></tr>
<tr><th>MU-A07/A09WV</th><th>MU-A12WV</th></tr>
<tr><td>WHT-BLK</td><td>311~381Ω</td><td>265~325Ω</td><td rowspan="2">Open or short-circuit</td></tr>
<tr><td>BLK-RED</td><td>282~347Ω</td><td>293~359Ω</td></tr>
</table>
<table>
<tr><th rowspan="2">Color of lead wire</th><th colspan="2">Normal</th><th rowspan="2">Abnormal</th></tr>
<tr><th>MUH-A07WV</th><th>MUH-A09/A12WV</th></tr>
<tr><td>WHT-BLK</td><td>311~381Ω</td><td>265~325Ω</td><td rowspan="2">Open or short-circuit</td></tr>
<tr><td>BLK-RED</td><td>282~347Ω</td><td>293~359Ω</td></tr>
</table></td><td> 
</td></tr>
</table>

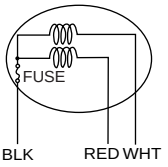
Ⓟ INNER PROTECTOR

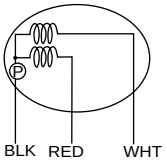
MUX-A10WV -E1 MUX-A19WV -E1 MUX-A20WV -E1 MUX-A25WV -E1 MUX-A26WV -E1

<table>
<tr><th>Part name</th><th>Check method and criterion</th><th>Figure</th></tr>
<tr><td>Compressor (MC, MC1, MC2)
INNER PROTECTOR
150°C OPEN
90°C CLOSE</td><td>Measure the resistance between the terminals with a tester.
(Coil wiring temperature-10°C ~ 40°C)
<table>
<tr><th></th><th colspan="5">Normal</th><th rowspan="2">Abnormal</th></tr>
<tr><th></th><th>MUX-A10WV</th><th colspan="2">MUX-A19WV</th><th colspan="2">MUX-A20WV</th></tr>
<tr><th></th><th>RN092VHSHT</th><th>RN145VHSHT</th><th>RN092VHSHT</th><th>RN099VHSHT</th><th>RN125VHSHT</th><th>Open or short-circuit</th></tr>
<tr><td>C-R</td><td>3.41 ~ 4.18Ω</td><td>2.14 ~ 2.63Ω</td><td>3.41 ~ 4.18Ω</td><td>2.99 ~ 3.67Ω</td><td>2.52 ~ 3.09Ω</td><td></td></tr>
<tr><td>C-S</td><td>5.41 ~ 6.63Ω</td><td>3.35 ~ 4.11Ω</td><td>5.41 ~ 6.63Ω</td><td>4.02 ~ 4.39Ω</td><td>5.04 ~ 6.18Ω</td><td></td></tr>
</table>
<table>
<tr><th></th><th colspan="4">Normal</th><th rowspan="2">Abnormal</th></tr>
<tr><th></th><th colspan="2">MUX-A25WV</th><th colspan="2">MUX-A26WV</th></tr>
<tr><th></th><th>RN145VHSHT</th><th>RN145VHSHT</th><th>RN145VHSHT</th><th>RN125VHSHT</th><th>Open or short-circuit</th></tr>
<tr><td>C-R</td><td>2.14 ~ 2.63Ω</td><td>2.14 ~ 2.63Ω</td><td>2.14 ~ 2.63Ω</td><td>2.52 ~ 3.09Ω</td><td></td></tr>
<tr><td>C-S</td><td>3.35 ~ 4.11Ω</td><td>3.35 ~ 4.11Ω</td><td>3.35 ~ 4.11Ω</td><td>5.04 ~ 6.18Ω</td><td></td></tr>
</table></td><td> 
</td></tr>
</table>

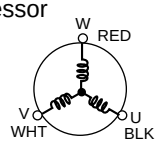
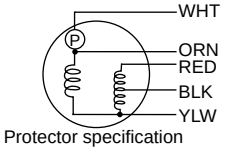
MUX-A10WV -E1 MUX-A19WV -E1 MUX-A20WV -E1 MUX-A25WV -E1 MUX-A26WV -E1

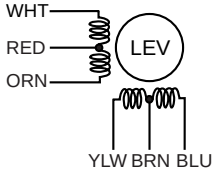
<table>
<tr><th>Part name</th><th>Check method and criterion</th><th>Figure</th></tr>
<tr><td>Outdoor fan motor
(MF, MF61)
INNER FUSE
MUX-A10WV
145°C OPEN

INNER PROTECTOR
MUX-A19/A20/A25/A26WV
145±8°C OPEN</td><td>Measure the resistance between the terminals with a tester.
(Coil wiring temperature -10°C ~ 40°C)
<table>
<tr><th></th><th colspan="3">Normal</th><th>Abnormal</th></tr>
<tr><th></th><th>MUX-A10WV</th><th>MUX-A19WV</th><th>MUX-A20WV</th><th rowspan="2">Open or short-circuit</th></tr>
<tr><td>WHT-BLK</td><td>196 ~ 241Ω</td><td>79 ~ 98Ω</td><td>79 ~ 98Ω</td></tr>
<tr><td>BLK-RED</td><td>208 ~ 246Ω</td><td>129 ~ 158Ω</td><td>129 ~ 158Ω</td><td></td></tr>
</table>
Measure the resistance between the terminals with a tester.
(Coil wiring temperature -10°C ~ 40°C)
<table>
<tr><th></th><th colspan="2">Normal</th><th>Abnormal</th></tr>
<tr><th></th><th>MUX-A25WV</th><th>MUX-A26WV</th><th rowspan="2">Open or short-circuit</th></tr>
<tr><td>WHT-BLK</td><td>79 ~ 98Ω</td><td>69 ~ 85Ω</td></tr>
<tr><td>BLK-RED</td><td>129 ~ 158Ω</td><td>70 ~ 86Ω</td><td></td></tr>
</table></td><td>MUX-A10WV
 

MUX-A19/A20/A25/A26WV
 
</td></tr>
<tr><td>Solenoid coil
(21R, 21RA, 21RB, 21R1, 21R2, 21R3, 21R4)</td><td>Measure the resistance with a tester. (Part temperature -10°C ~ 40°C)
<table>
<tr><th>Normal</th><th>Abnormal</th></tr>
<tr><td>1410 ~ 1730Ω</td><td>Open or short-circuit</td></tr>
</table></td><td></td></tr>
</table>

MXZ-A18WV -E1

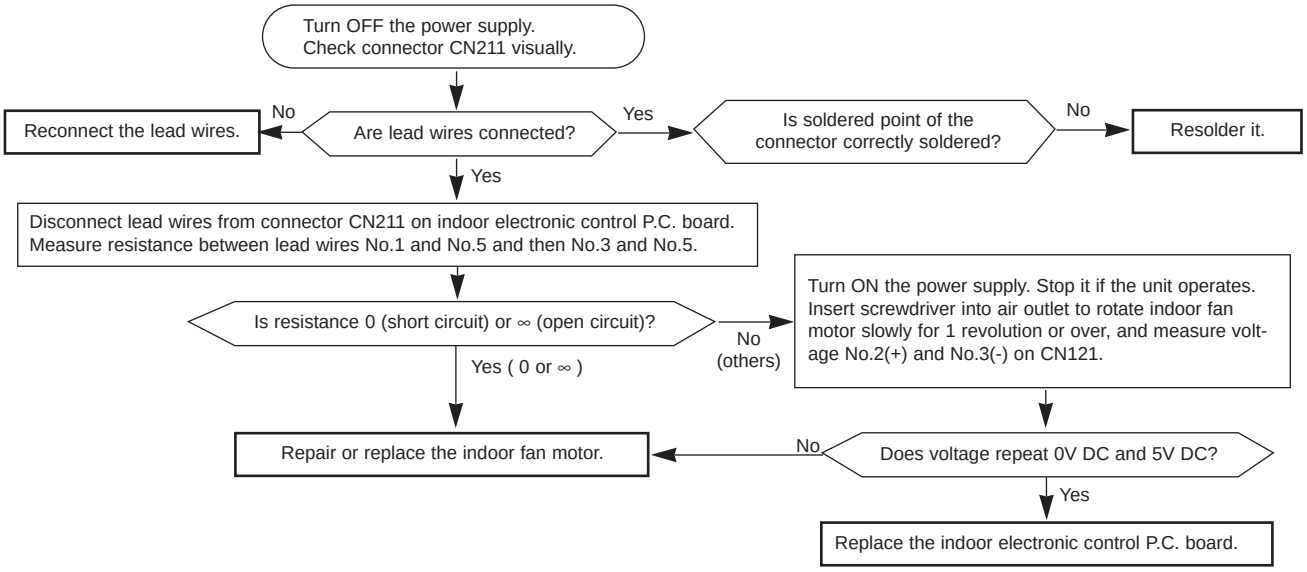
<table>
<tr><th>Part name</th><th>Check method and criterion</th></tr>
<tr><td>Defrost thermistor
Evaporation/Gas pipe temperature thermistor</td><td>Measure the resistance using a tester.
(Part temperature -10°C ~ 40°C)
<table>
<tr><th>Normal</th><th>abnormal</th></tr>
<tr><td>5kΩ ~ 55kΩ</td><td>Open or short-circuit</td></tr>
</table></td></tr>
<tr><td>Discharge temperature thermistor</td><td>Measure the resistance using a tester, after warming up the thermistor by holding by hand.
(Part temperature : 20°C ~40°C)
<table>
<tr><th>Normal</th><th>abnormal</th></tr>
<tr><td>100kΩ ~ 250kΩ</td><td>Opened or short-circuited</td></tr>
</table></td></tr>
<tr><td>Compressor
 
</td><td>Measure the resistance between terminals using a tester.
(Winding temperature : -10°C ~ 40°C)
<table>
<tr><th>Normal</th><th>abnormal</th></tr>
<tr><td>1Each phase 2.25Ω ~ 2.76Ω</td><td>Open or short-circuit</td></tr>
</table></td></tr>
<tr><td>Outdoor fan motor
 

Protector specification
Short 87±15℃
Open 135±5℃</td><td>Measure the resistance between lead wires using a tester.
(Part temperature : -10°C ~ 40°C)
<table>
<tr><th></th><th>Normal</th><th>abnormal</th></tr>
<tr><td>WHT - BLK</td><td>123.0Ω ~ 150.0Ω</td><td rowspan="3">Open or short-circuit</td></tr>
<tr><td>BLK - YLW</td><td>30.0Ω ~ 36.0Ω</td></tr>
<tr><td>BLK - RED</td><td>181.0Ω ~ 221.0Ω</td></tr>
</table></td></tr>
<tr><td>R. V. coil</td><td>Measure the resistance using a tester. (Part temperature -10°C ~ 40°C)
<table>
<tr><th>Normal</th><th>abnormal</th></tr>
<tr><td>2.6kΩ ~ 3.3kΩ</td><td>Open or short-circuit</td></tr>
</table></td></tr>
<tr><td>Linear expansion valve
 
</td><td>Measure the resistance using a tester.(Part temperature -10°C ~ 40°C)
<table>
<tr><th>Lead wire color</th><th>Normal</th><th>Abnormal</th></tr>
<tr><td>WHT - RED</td><td rowspan="4">37.4Ω ~ 53.9Ω</td><td rowspan="4">Open or short-circuit</td></tr>
<tr><td>RED - ORN</td></tr>
<tr><td>YLW - BRN</td></tr>
<tr><td>BRN - BLU</td></tr>
</table></td></tr>
</table>

Ⓟ Inner protector

When OPERATION INDICATOR lamp flashes 3-time.
Indoor fan motor doesn't operate.

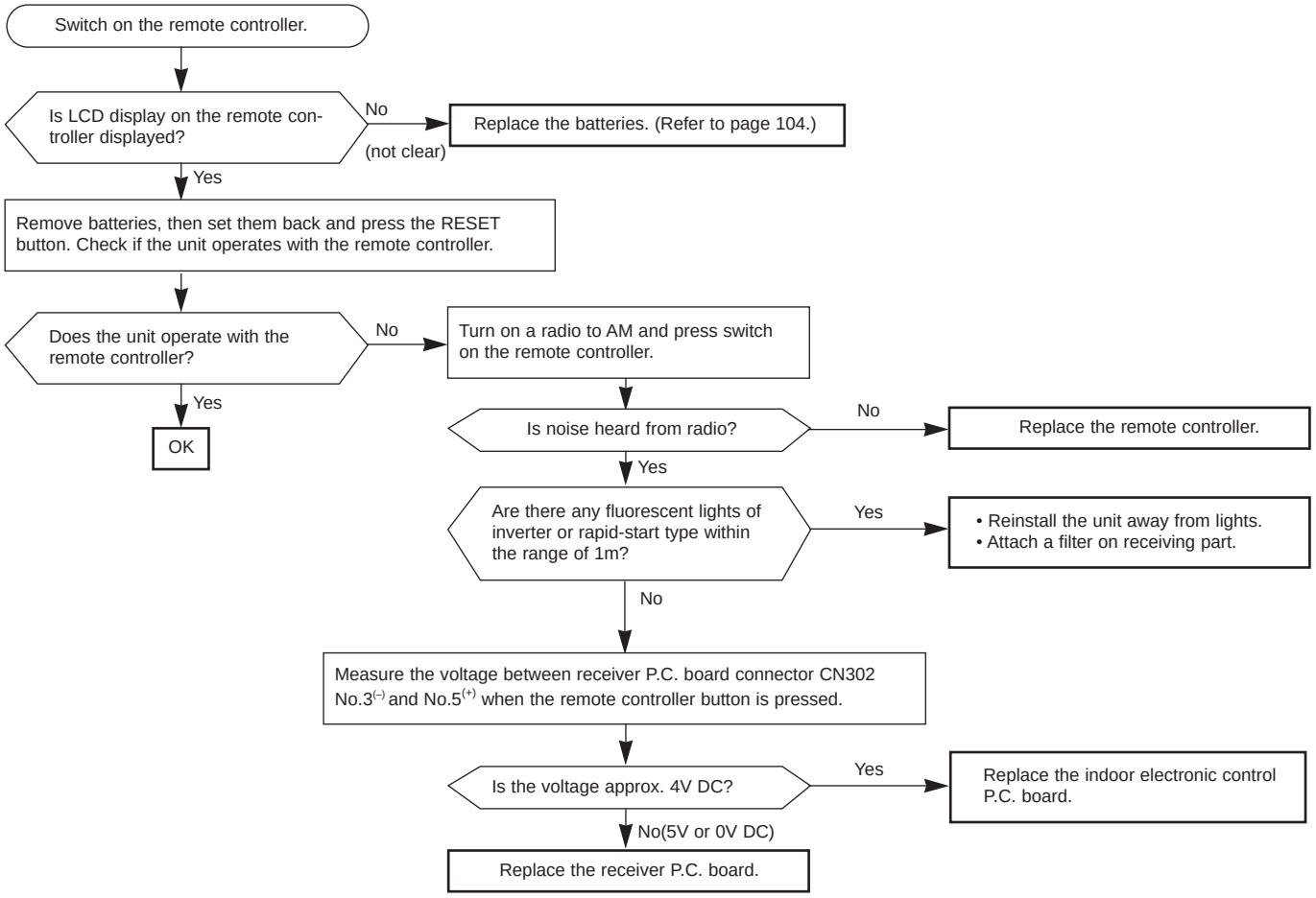
Ⓐ Check of indoor fan motor


Turn OFF the power supply.
Check connector CN211 visually.
Are lead wires connected?
No
Reconnect the lead wires.
Yes
Is soldered point of the connector correctly soldered?
No
Resolder it.
Yes
Disconnect lead wires from connector CN211 on indoor electronic control P.C. board.
Measure resistance between lead wires No.1 and No.5 and then No.3 and No.5.
Is resistance 0 (short circuit) or ∞ (open circuit)?
No (others)
Turn ON the power supply. Stop it if the unit operates.
Insert screwdriver into air outlet to rotate indoor fan motor slowly for 1 revolution or over, and measure voltage No.2(+) and No.3(-) on CN121.
Yes (0 or ∞)
Repair or replace the indoor fan motor.
No
Does voltage repeat 0V DC and 5V DC?
Yes
Replace the indoor electronic control P.C. board.

Indoor unit operates by pressing the EMERGENCY OPERATION switch, but doesn't operate with the remote controller.

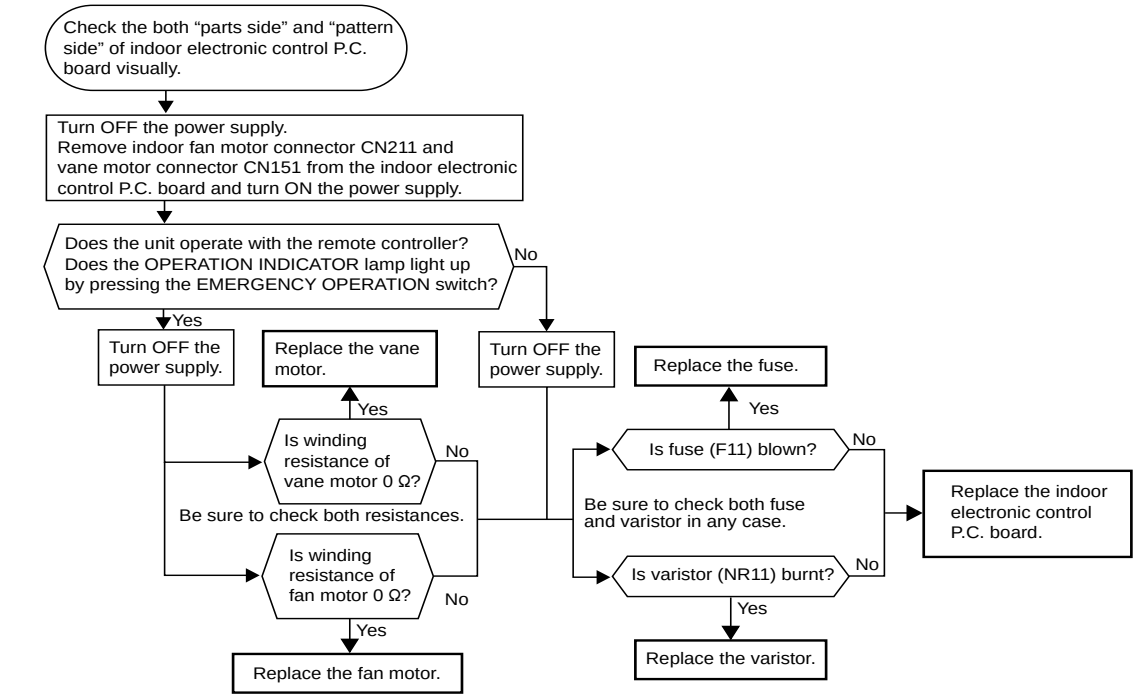
Ⓑ Check of remote controller and receiver P.C. board

※Check the remote controller is exclusive for this air conditioner.


Switch on the remote controller.
Is LCD display on the remote controller displayed?
No (not clear)
Replace the batteries. (Refer to page 104.)
Yes
Remove batteries, then set them back and press the RESET button. Check if the unit operates with the remote controller.
Does the unit operate with the remote controller?
No
Turn on a radio to AM and press switch on the remote controller.
Yes
OK
Is noise heard from radio?
No
Replace the remote controller.
Yes
Are there any fluorescent lights of inverter or rapid-start type within the range of 1m?
Yes
• Reinstall the unit away from lights.
• Attach a filter on receiving part.
No
Measure the voltage between receiver P.C. board connector CN302 No.3(-) and No.5(+) when the remote controller button is pressed.
Is the voltage approx. 4V DC?
Yes
Replace the indoor electronic control P.C. board.
No(5V or 0V DC)
Replace the receiver P.C. board.

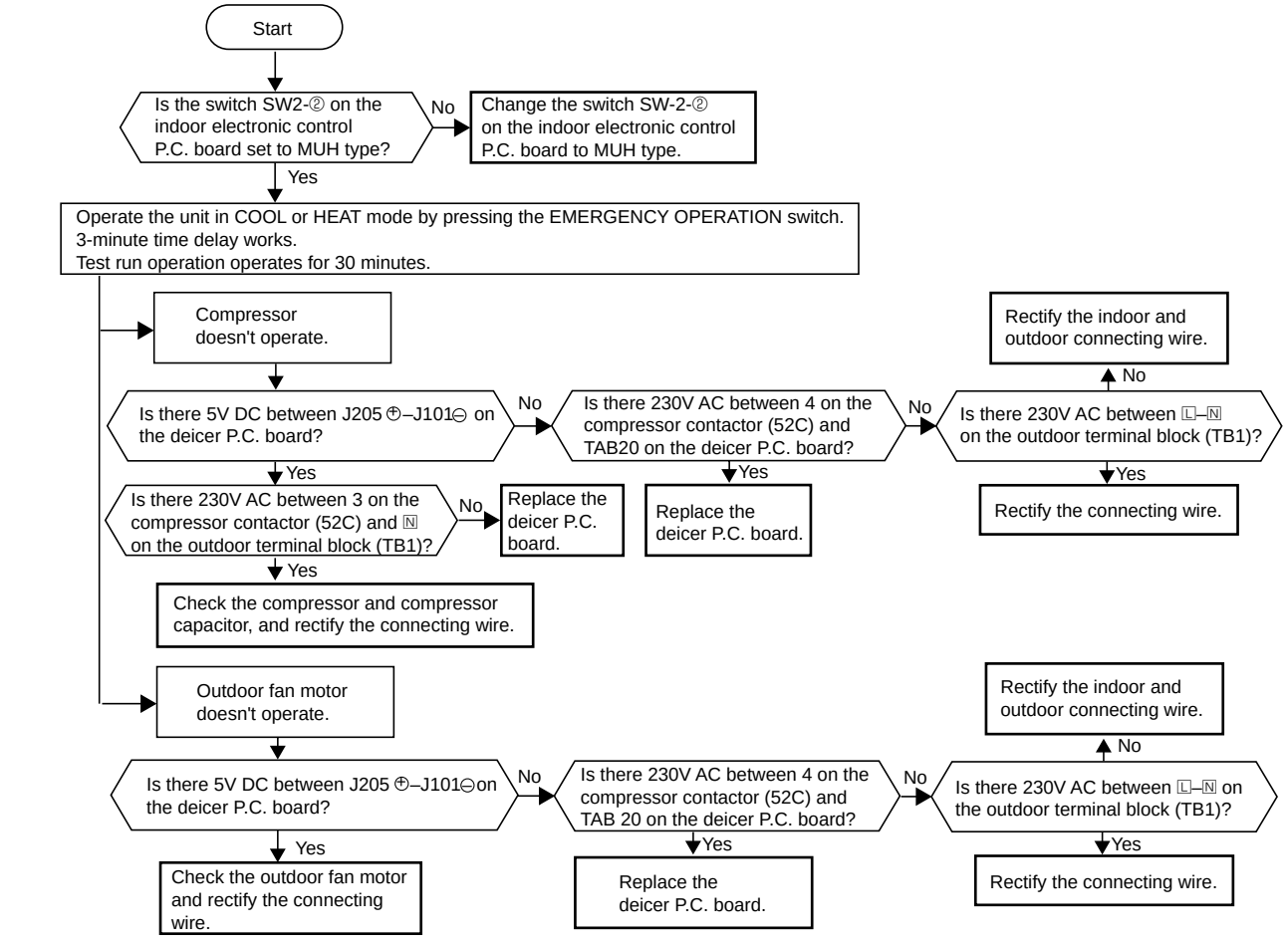
The unit doesn't operate with the remote controller.
Also, the OPERATION INDICATOR lamp doesn't light up by pressing the EMERGENCY OPERATION switch.

Ⓒ Check of indoor electronic control P.C. board


Check the both "parts side" and "pattern side" of indoor electronic control P.C. board visually.
Turn OFF the power supply.
Remove indoor fan motor connector CN211 and vane motor connector CN151 from the indoor electronic control P.C. board and turn ON the power supply.
Does the unit operate with the remote controller?
Does the OPERATION INDICATOR lamp light up by pressing the EMERGENCY OPERATION switch?
No
Yes
Turn OFF the power supply.
Replace the vane motor.
Yes
Is winding resistance of vane motor 0 Ω?
No
Be sure to check both resistances.
Is winding resistance of fan motor 0 Ω?
No
Yes
Replace the fan motor.
Turn OFF the power supply.
Replace the fuse.
Yes
Is fuse (F11) blown?
No
Be sure to check both fuse and varistor in any case.
Is varistor (NR11) burnt?
No
Yes
Replace the varistor.
Replace the indoor electronic control P.C. board.

Compressor and/or outdoor fan motor doesn't operate.

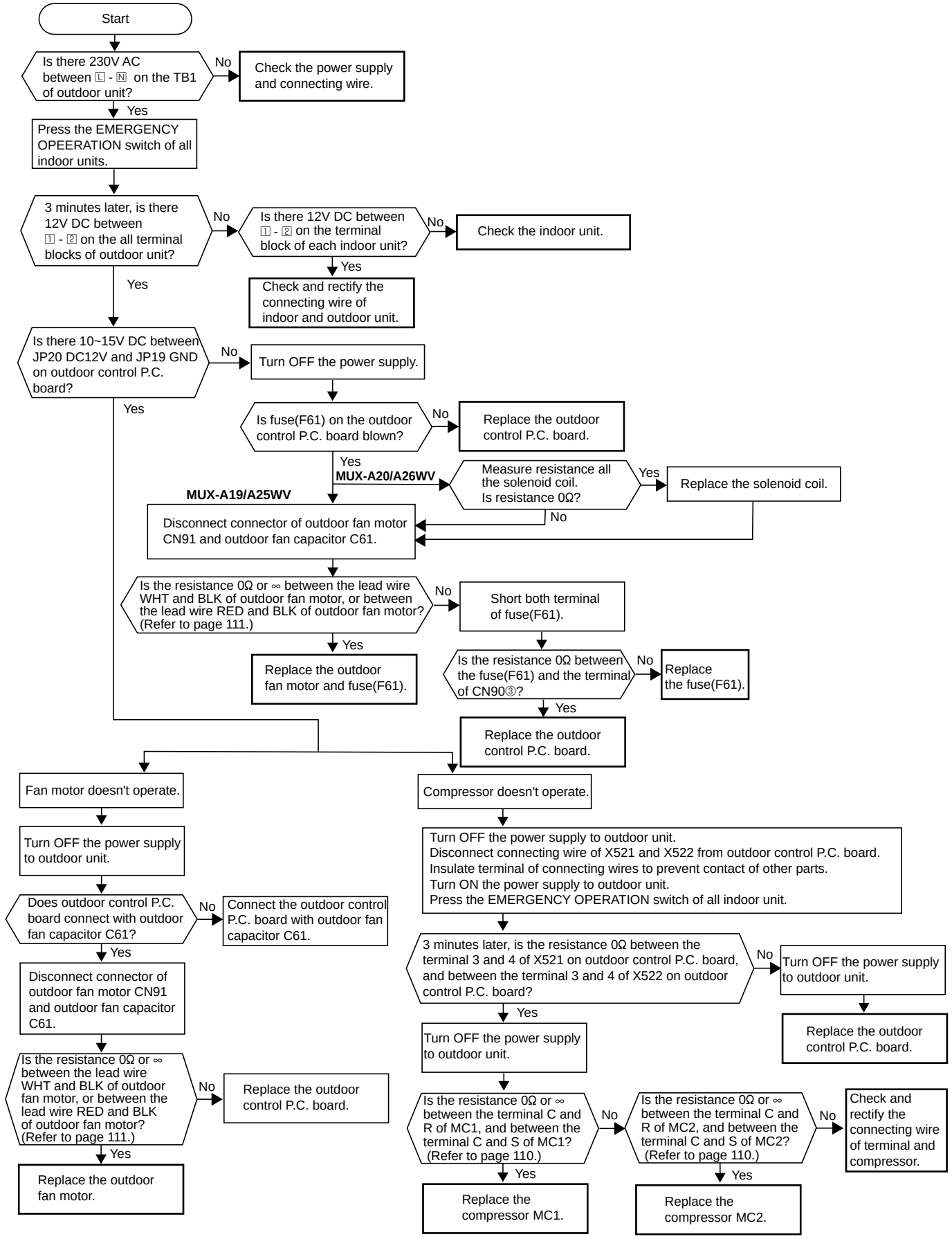
Ⓓ Check of outdoor unit <MUH-A07/A09/A12WV>


Start
Is the switch SW2-② on the indoor electronic control P.C. board set to MUH type?
No
Change the switch SW-2-② on the indoor electronic control P.C. board to MUH type.
Yes
Operate the unit in COOL or HEAT mode by pressing the EMERGENCY OPERATION switch.
3-minute time delay works.
Test run operation operates for 30 minutes.
Compressor doesn't operate.
Is there 5V DC between J205 ⊕–J101⊖ on the deicer P.C. board?
No
Is there 230V AC between 4 on the compressor contactor (52C) and TAB20 on the deicer P.C. board?
No
Is there 230V AC between L–N on the outdoor terminal block (TB1)?
No
Rectify the indoor and outdoor connecting wire.
Yes
Rectify the connecting wire.
Yes
Replace the deicer P.C. board.
Yes
Is there 230V AC between 3 on the compressor contactor (52C) and N on the outdoor terminal block (TB1)?
No
Replace the deicer P.C. board.
Yes
Check the compressor and compressor capacitor, and rectify the connecting wire.
Outdoor fan motor doesn't operate.
Is there 5V DC between J205 ⊕–J101⊖ on the deicer P.C. board?
No
Is there 230V AC between 4 on the compressor contactor (52C) and TAB 20 on the deicer P.C. board?
No
Is there 230V AC between L–N on the outdoor terminal block (TB1)?
No
Rectify the indoor and outdoor connecting wire.
Yes
Rectify the connecting wire.
Yes
Replace the deicer P.C. board.
Yes
Check the outdoor fan motor and rectify the connecting wire.

Compressor and/or outdoor fan doesn't operate.

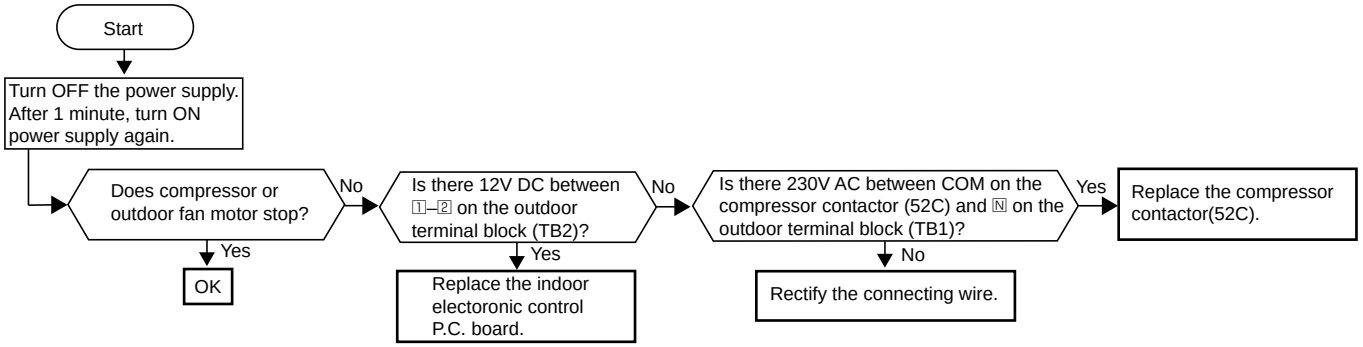
Ⓓ Check of outdoor unit

<MUX-A19/A20/A25/A26WV>


Start
Is there 230V AC between Ⓛ - Ⓝ on the TB1 of outdoor unit?
No
Check the power supply and connecting wire.
Yes
Press the EMERGENCY OPEERATION switch of all indoor units.
3 minutes later, is there 12V DC between ① - ② on the all terminal blocks of outdoor unit?
No
Is there 12V DC between ① - ② on the terminal block of each indoor unit?
No
Check the indoor unit.
Yes
Check and rectify the connecting wire of indoor and outdoor unit.
Yes
Is there 10~15V DC between JP20 DC12V and JP19 GND on outdoor control P.C. board?
No
Turn OFF the power supply.
Yes
Is fuse(F61) on the outdoor control P.C. board blown?
No
Replace the outdoor control P.C. board.
Yes
MUX-A20/A26WV
Measure resistance all the solenoid coil. Is resistance 0Ω?
Yes
Replace the solenoid coil.
No
MUX-A19/A25WV
Disconnect connector of outdoor fan motor CN91 and outdoor fan capacitor C61.
Is the resistance 0Ω or ∞ between the lead wire WHT and BLK of outdoor fan motor, or between the lead wire RED and BLK of outdoor fan motor? (Refer to page 111.)
No
Short both terminal of fuse(F61).
Yes
Replace the outdoor fan motor and fuse(F61).
Is the resistance 0Ω between the fuse(F61) and the terminal of CN90③?
No
Replace the fuse(F61).
Yes
Replace the outdoor control P.C. board.
Fan motor doesn't operate.
Turn OFF the power supply to outdoor unit.
Does outdoor control P.C. board connect with outdoor fan capacitor C61?
No
Connect the outdoor control P.C. board with outdoor fan capacitor C61.
Yes
Disconnect connector of outdoor fan motor CN91 and outdoor fan capacitor C61.
Is the resistance 0Ω or ∞ between the lead wire WHT and BLK of outdoor fan motor, or between the lead wire RED and BLK of outdoor fan motor? (Refer to page 111.)
No
Replace the outdoor control P.C. board.
Yes
Replace the outdoor fan motor.
Compressor doesn't operate.
Turn OFF the power supply to outdoor unit.
Disconnect connecting wire of X521 and X522 from outdoor control P.C. board.
Insulate terminal of connecting wires to prevent contact of other parts.
Turn ON the power supply to outdoor unit.
Press the EMERGENCY OPERATION switch of all indoor unit.
3 minutes later, is the resistance 0Ω between the terminal 3 and 4 of X521 on outdoor control P.C. board, and between the terminal 3 and 4 of X522 on outdoor control P.C. board?
No
Turn OFF the power supply to outdoor unit.
Replace the outdoor control P.C. board.
Yes
Turn OFF the power supply to outdoor unit.
Is the resistance 0Ω or ∞ between the terminal C and R of MC1, and between the terminal C and S of MC1? (Refer to page 110.)
No
Is the resistance 0Ω or ∞ between the terminal C and R of MC2, and between the terminal C and S of MC2? (Refer to page 110.)
No
Check and rectify the connecting wire of terminal and compressor.
Yes
Replace the compressor MC1.
Yes
Replace the compressor MC2.

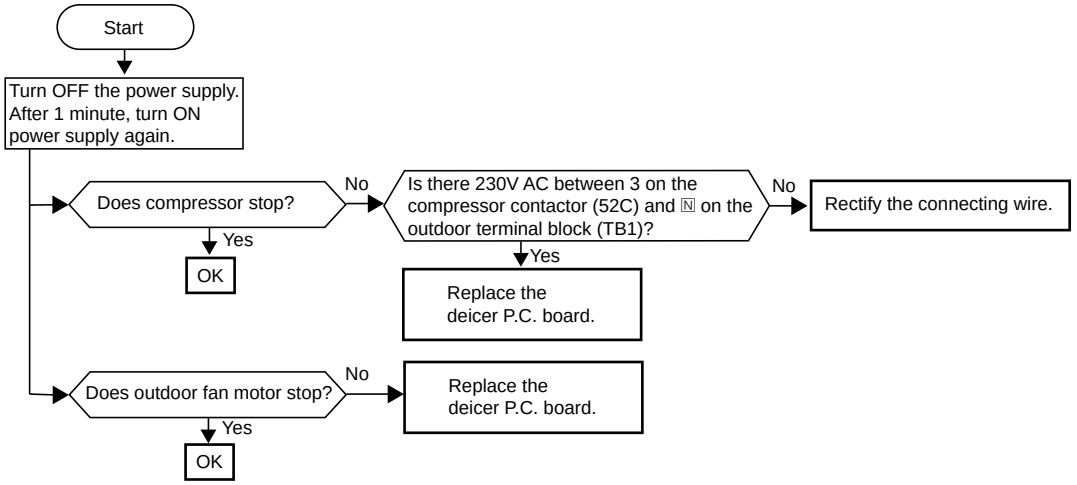
Compressor and/or outdoor fan motor doesn't stop.

Ⓔ Check of outdoor unit <MU-A07/A09/A12WV>


Start
Turn OFF the power supply. After 1 minute, turn ON power supply again.
Does compressor or outdoor fan motor stop?
No
Is there 12V DC between 1–2 on the outdoor terminal block (TB2)?
No
Is there 230V AC between COM on the compressor contactor (52C) and N on the outdoor terminal block (TB1)?
Yes
Replace the compressor contactor(52C).
Yes
OK
Yes
Replace the indoor electoronic control P.C. board.
No
Rectify the connecting wire.

Compressor and/or outdoor fan motor doesn't stop.

Ⓔ Check of outdoor unit <MUH-A07/A09/A12WV>

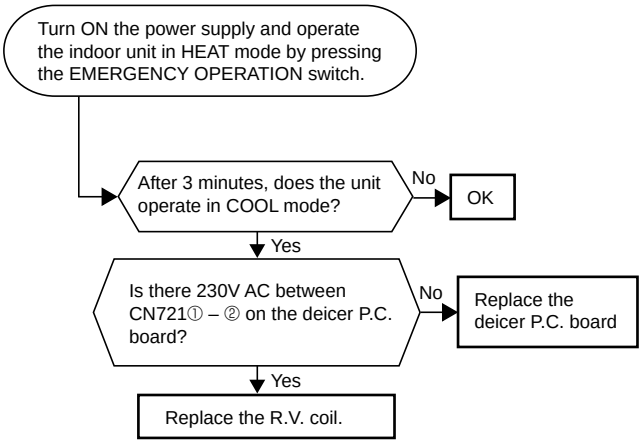


Unit operates COOL mode even if it is set to HEAT mode.

※ First, measure the resistance of R.V. coil to confirm it is disconnected or is not short-circuit.

Ⓕ Check of R.V. coil

<MUH-A07/A09/A12WV>

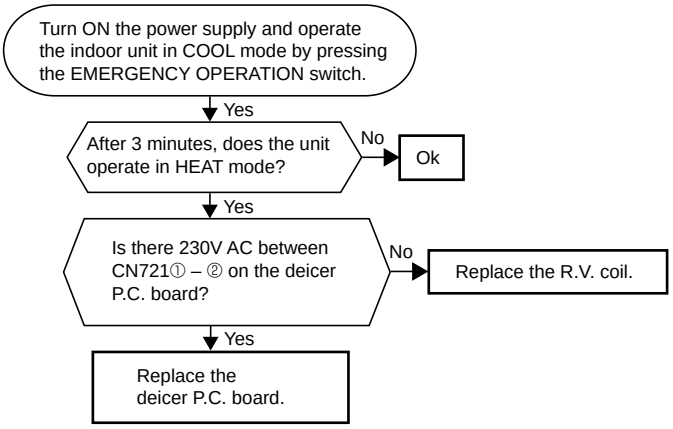

Turn ON the power supply and operate the indoor unit in HEAT mode by pressing the EMERGENCY OPERATION switch.
After 3 minutes, does the unit operate in COOL mode?
No
OK
Yes
Is there 230V AC between CN721① – ② on the deicer P.C. board?
No
Replace the deicer P.C. board
Yes
Replace the R.V. coil.

Unit operates HEAT mode even if it is set to COOL mode.

※ First, measure the resistance of R.V. coil to confirm it is disconnected or is not short-circuit.

Ⓕ Check of R.V. coil

<MUH-A07/A09/A12WV>


Turn ON the power supply and operate the indoor unit in COOL mode by pressing the EMERGENCY OPERATION switch.
Yes
After 3 minutes, does the unit operate in HEAT mode?
No
Ok
Yes
Is there 230V AC between CN721① – ② on the deicer P.C. board?
No
Replace the R.V. coil.
Yes
Replace the deicer P.C. board.

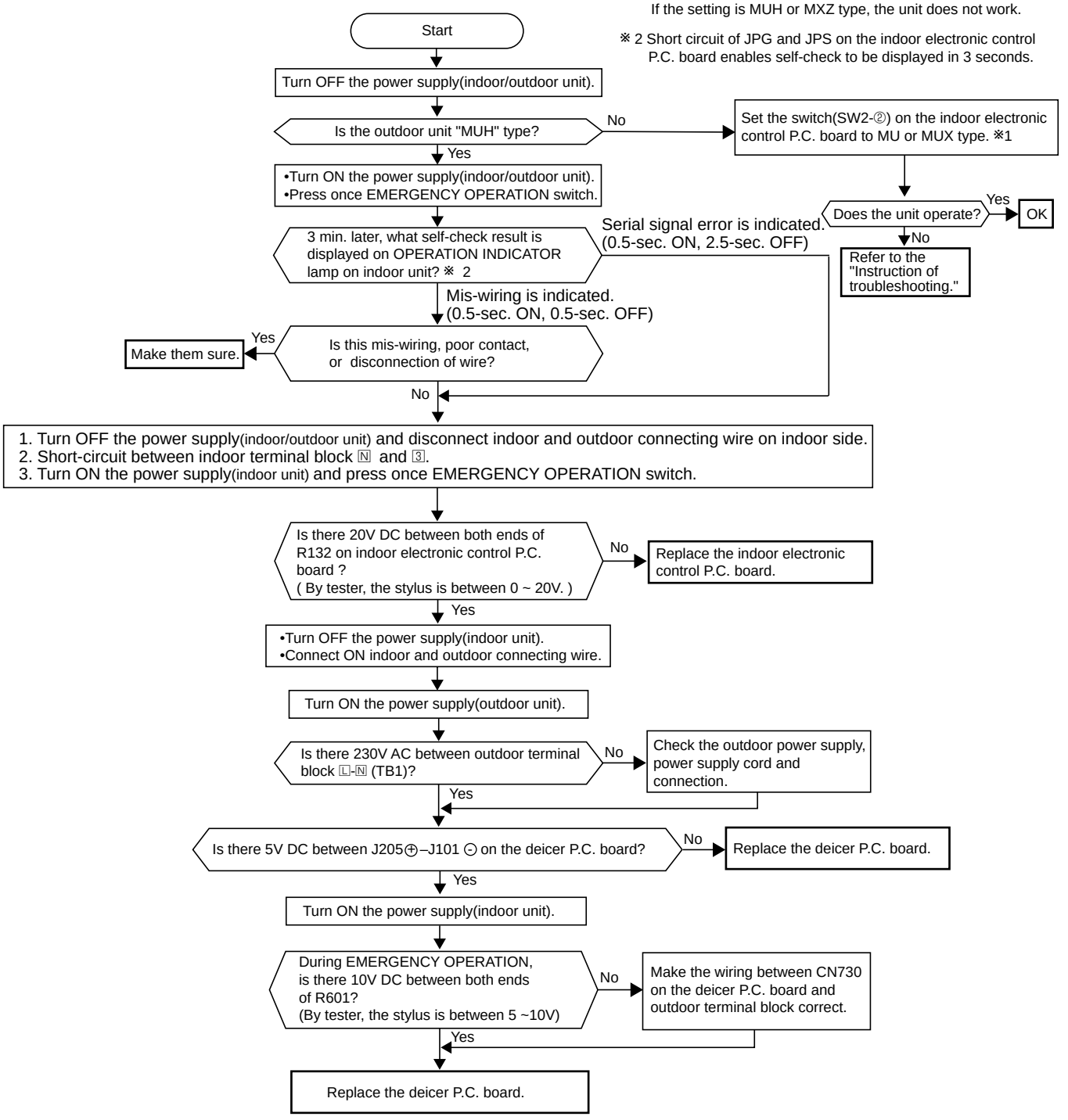
When OPERATION INDICATOR lamp flashes 0.5-second intervals or 1-time.
Outdoor unit does not operate.

Ⓖ How to check mis-wiring and serial signal error

<MUH-A07/A09/A12WV>

※ 1 Set the switch(SW2-②) on indoor electronic control P.C. board to MU or MUX type, when the outdoor unit is MU or MUX type. If the setting is MUH or MXZ type, the unit does not work.

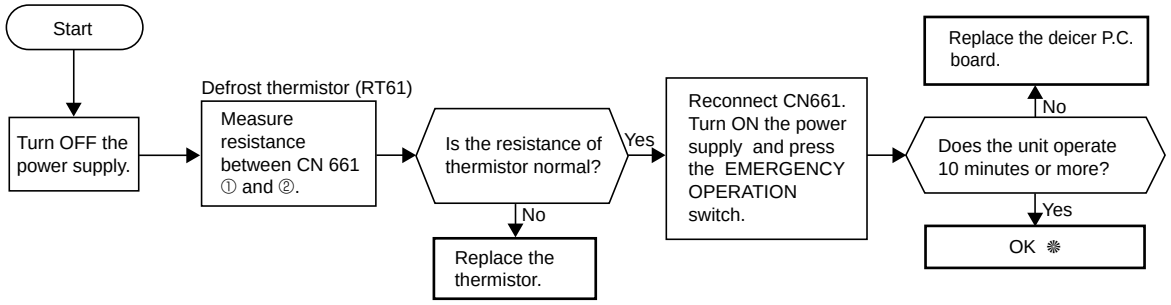
※ 2 Short circuit of JPG and JPS on the indoor electronic control P.C. board enables self-check to be displayed in 3 seconds.


Start
Turn OFF the power supply(indoor/outdoor unit).
Is the outdoor unit "MUH" type?
No
Set the switch(SW2-②) on the indoor electronic control P.C. board to MU or MUX type. ※1
Yes
•Turn ON the power supply(indoor/outdoor unit).
•Press once EMERGENCY OPERATION switch.
Does the unit operate?
Yes
OK
No
Refer to the "Instruction of troubleshooting."
3 min. later, what self-check result is displayed on OPERATION INDICATOR lamp on indoor unit? ※ 2
Serial signal error is indicated. (0.5-sec. ON, 2.5-sec. OFF)
Mis-wiring is indicated. (0.5-sec. ON, 0.5-sec. OFF)
Is this mis-wiring, poor contact, or disconnection of wire?
Yes
Make them sure.
No
1. Turn OFF the power supply(indoor/outdoor unit) and disconnect indoor and outdoor connecting wire on indoor side.
2. Short-circuit between indoor terminal block Ⓝ and ③.
3. Turn ON the power supply(indoor unit) and press once EMERGENCY OPERATION switch.
Is there 20V DC between both ends of R132 on indoor electronic control P.C. board ? (By tester, the stylus is between 0 ~ 20V.)
No
Replace the indoor electronic control P.C. board.
Yes
•Turn OFF the power supply(indoor unit).
•Connect ON indoor and outdoor connecting wire.
Turn ON the power supply(outdoor unit).
Is there 230V AC between outdoor terminal block Ⓛ-Ⓝ (TB1)?
No
Check the outdoor power supply, power supply cord and connection.
Yes
Is there 5V DC between J205⊕–J101 ⊖ on the deicer P.C. board?
No
Replace the deicer P.C. board.
Yes
Turn ON the power supply(indoor unit).
During EMERGENCY OPERATION, is there 10V DC between both ends of R601? (By tester, the stylus is between 5 ~10V)
No
Make the wiring between CN730 on the deicer P.C. board and outdoor terminal block correct.
Yes
Replace the deicer P.C. board.

When OPERATION INDICATOR lamp flashes 6-time.
Thermistors in the outdoor unit are abnormal.

Ⓗ Check of outdoor thermistor

<MUH-A07/A09/A12WV>


Start
Turn OFF the power supply.
Defrost thermistor (RT61)
Measure resistance between CN 661 ① and ②.
Is the resistance of thermistor normal?
Yes
No
Replace the thermistor.
Reconnect CN661. Turn ON the power supply and press the EMERGENCY OPERATION switch.
Does the unit operate 10 minutes or more?
No
Replace the deicer P.C. board.
Yes
OK ✵

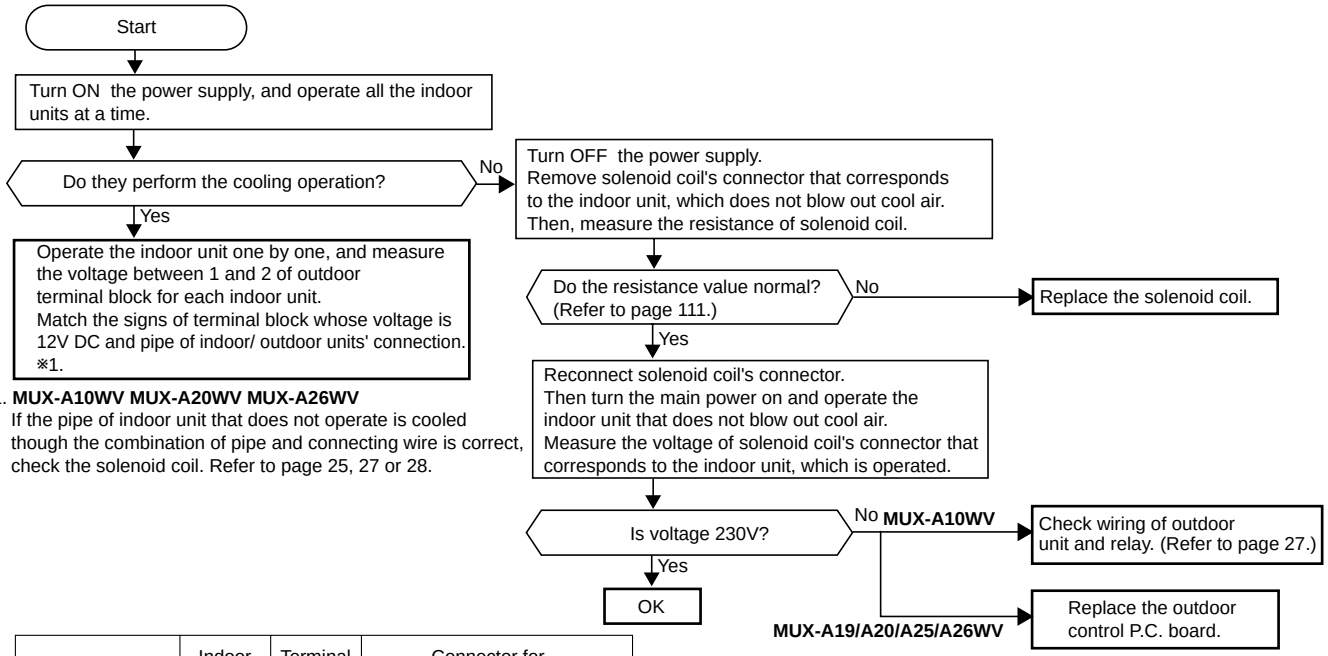
✵ Defective contact of the connector is considered.

Cool air does not blow out although indoor unit is operating.

Ⓘ Check of indoor/outdoor units' connection and outdoor unit

<MUX-A10/A19/A20/A25/A26WV>

※ In case of troubleshooting, be sure to operate indoor unit by emergency operation switch.

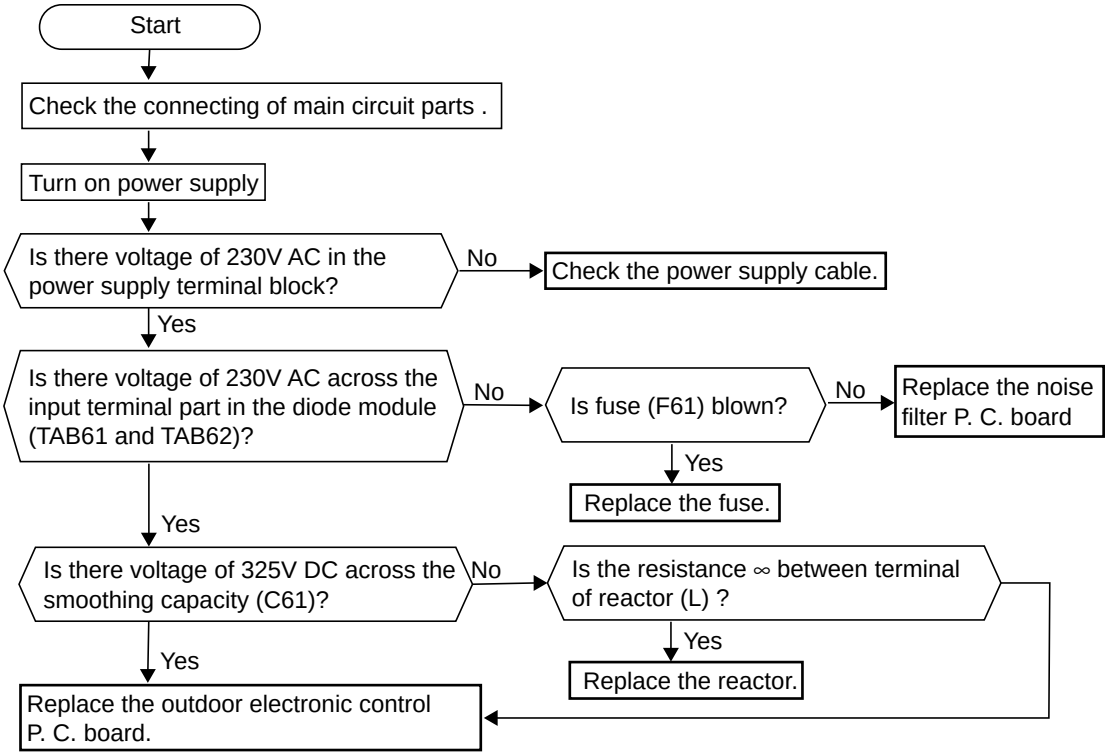

Start
Turn ON the power supply, and operate all the indoor units at a time.
Do they perform the cooling operation?
No
Yes
Turn OFF the power supply.
Remove solenoid coil's connector that corresponds to the indoor unit, which does not blow out cool air.
Then, measure the resistance of solenoid coil.
Do the resistance value normal? (Refer to page 111.)
No
Replace the solenoid coil.
Yes
Operate the indoor unit one by one, and measure the voltage between 1 and 2 of outdoor terminal block for each indoor unit.
Match the signs of terminal block whose voltage is 12V DC and pipe of indoor/ outdoor units' connection.
※1.
Reconnect solenoid coil's connector.
Then turn the main power on and operate the indoor unit that does not blow out cool air.
Measure the voltage of solenoid coil's connector that corresponds to the indoor unit, which is operated.
Is voltage 230V?
No MUX-A10WV
Check wiring of outdoor unit and relay. (Refer to page 27.)
Yes
OK
MUX-A19/A20/A25/A26WV
Replace the outdoor control P.C. board.

※1. **MUX-A10WV MUX-A20WV MUX-A26WV**
If the pipe of indoor unit that does not operate is cooled though the combination of pipe and connecting wire is correct, check the solenoid coil. Refer to page 25, 27 or 28.

Model	Indoor unit	Terminal block	Connector for solenoid coil control	
MUX-A10WV	A	TB2	21R1	21R
	B	TB2	21R2	
MUX-A20WV	B	TB3	21R3-CN85	21RB-CN81
	C	TB4	21R4-CN86	
MUX-A26WV	A	TB2	21R1-CN83	21RA-CN82
	B	TB3	21R2-CN84	
	C	TB4	21R3-CN85	21RB-CN81
	D	TB5	21R4-CN86	

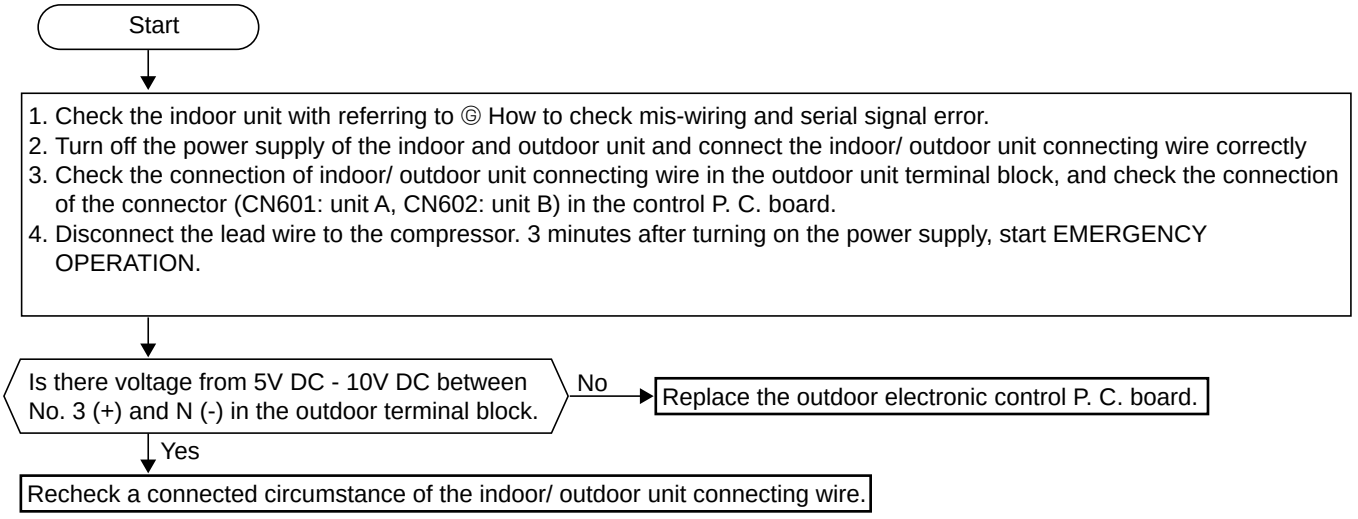
Outdoor unit does not operate. (LED display: display OFF)

Ⓙ Check of power supply <MXZ-A18WV>


Start
Check the connecting of main circuit parts .
Turn on power supply
Is there voltage of 230V AC in the power supply terminal block?
No
Check the power supply cable.
Yes
Is there voltage of 230V AC across the input terminal part in the diode module (TAB61 and TAB62)?
No
Is fuse (F61) blown?
No
Replace the noise filter P. C. board
Yes
Replace the fuse.
Yes
Is there voltage of 325V DC across the smoothing capacity (C61)?
No
Is the resistance ∞ between terminal of reactor (L) ?
Yes
Yes
Replace the reactor.
Replace the outdoor electronic control P. C. board.

Outdoor unit does not operate. (LED display: Both LED1 and LED2 lighting)

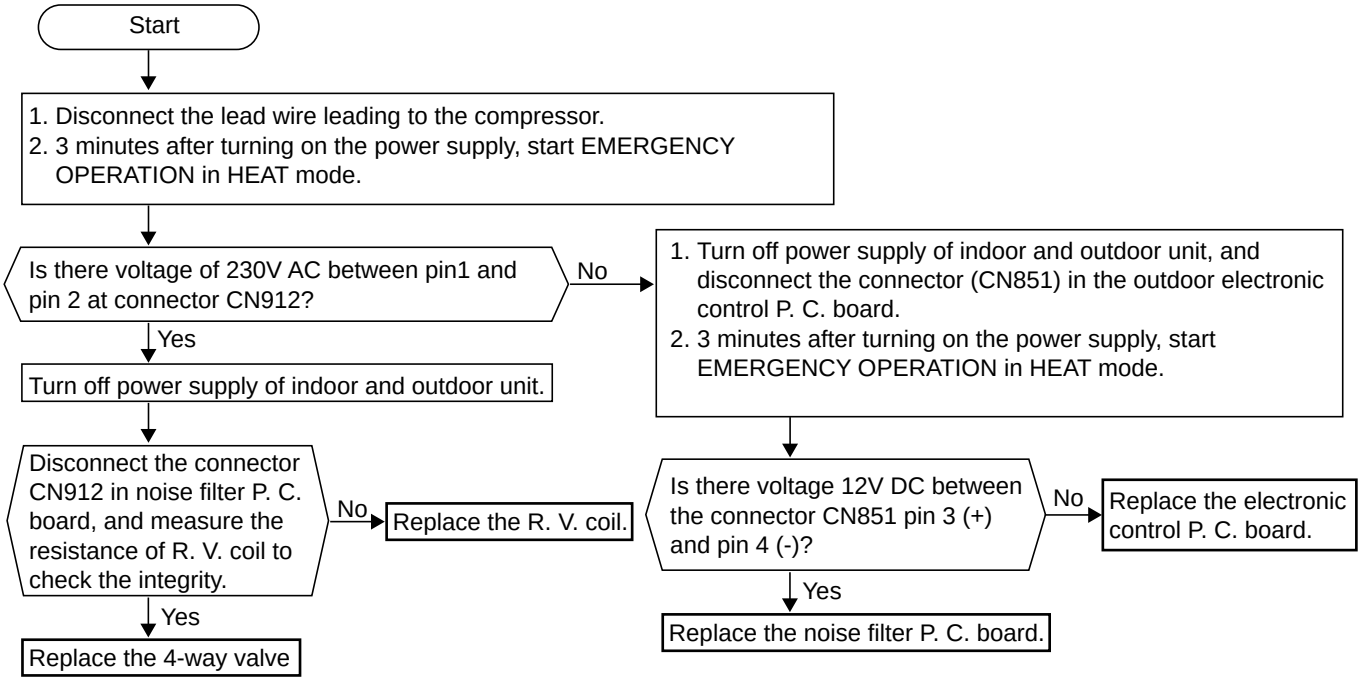
Ⓚ Check of outdoor unit serial signal <MXZ-A18WV>


Start
1. Check the indoor unit with referring to Ⓖ How to check mis-wiring and serial signal error.
2. Turn off the power supply of the indoor and outdoor unit and connect the indoor/ outdoor unit connecting wire correctly
3. Check the connection of indoor/ outdoor unit connecting wire in the outdoor unit terminal block, and check the connection of the connector (CN601: unit A, CN602: unit B) in the control P. C. board.
4. Disconnect the lead wire to the compressor. 3 minutes after turning on the power supply, start EMERGENCY OPERATION.
Is there voltage from 5V DC - 10V DC between No. 3 (+) and N (-) in the outdoor terminal block.
No
Replace the outdoor electronic control P. C. board.
Yes
Recheck a connected circumstance of the indoor/ outdoor unit connecting wire.

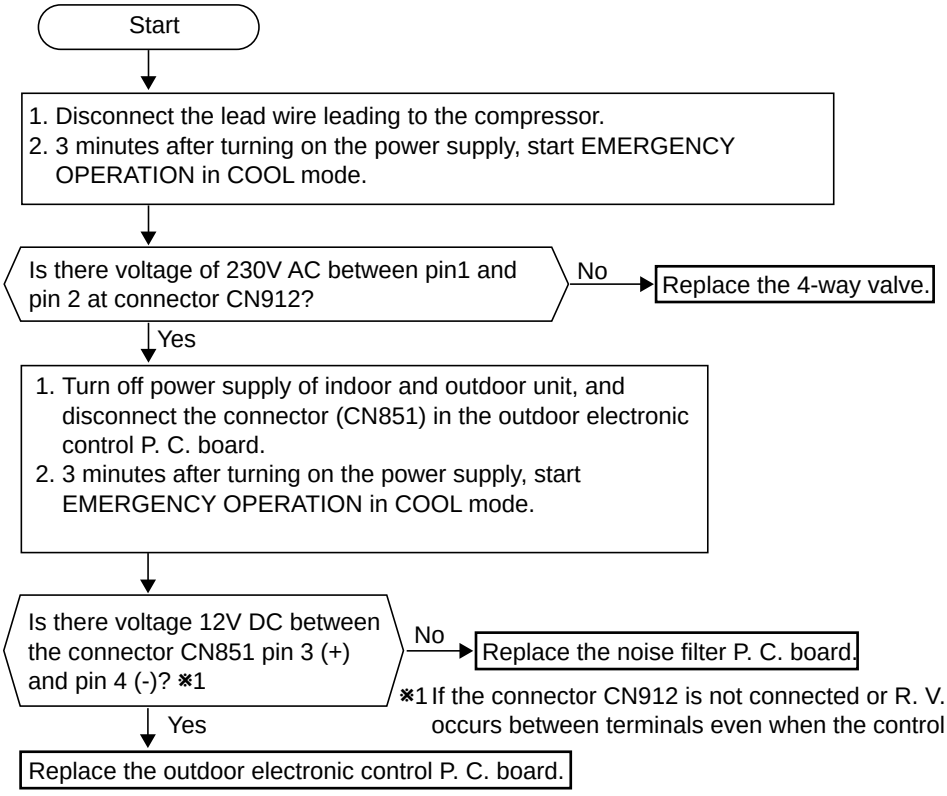
The cooling operation or heating operation does not operate. (LED display: Both LED1 and LED2 lighting)

Ⓛ Check of R. V. coil <MXZ-A18WV>

• When heating operation does not work.


Start
1. Disconnect the lead wire leading to the compressor.
2. 3 minutes after turning on the power supply, start EMERGENCY OPERATION in HEAT mode.
Is there voltage of 230V AC between pin1 and pin 2 at connector CN912?
No
1. Turn off power supply of indoor and outdoor unit, and disconnect the connector (CN851) in the outdoor electronic control P. C. board.
2. 3 minutes after turning on the power supply, start EMERGENCY OPERATION in HEAT mode.
Yes
Turn off power supply of indoor and outdoor unit.
Disconnect the connector CN912 in noise filter P. C. board, and measure the resistance of R. V. coil to check the integrity.
No
Replace the R. V. coil.
Is there voltage 12V DC between the connector CN851 pin 3 (+) and pin 4 (-)?
No
Replace the electronic control P. C. board.
Yes
Replace the noise filter P. C. board.
Yes
Replace the 4-way valve

• When cooling operation does not work.


Start
1. Disconnect the lead wire leading to the compressor.
2. 3 minutes after turning on the power supply, start EMERGENCY OPERATION in COOL mode.
Is there voltage of 230V AC between pin1 and pin 2 at connector CN912?
No
Replace the 4-way valve.
Yes
1. Turn off power supply of indoor and outdoor unit, and disconnect the connector (CN851) in the outdoor electronic control P. C. board.
2. 3 minutes after turning on the power supply, start EMERGENCY OPERATION in COOL mode.
Is there voltage 12V DC between the connector CN851 pin 3 (+) and pin 4 (-)? ※1
No
Replace the noise filter P. C. board.
Yes
Replace the outdoor electronic control P. C. board.

※1 If the connector CN912 is not connected or R. V. coil is open, voltage occurs between terminals even when the control is OFF.

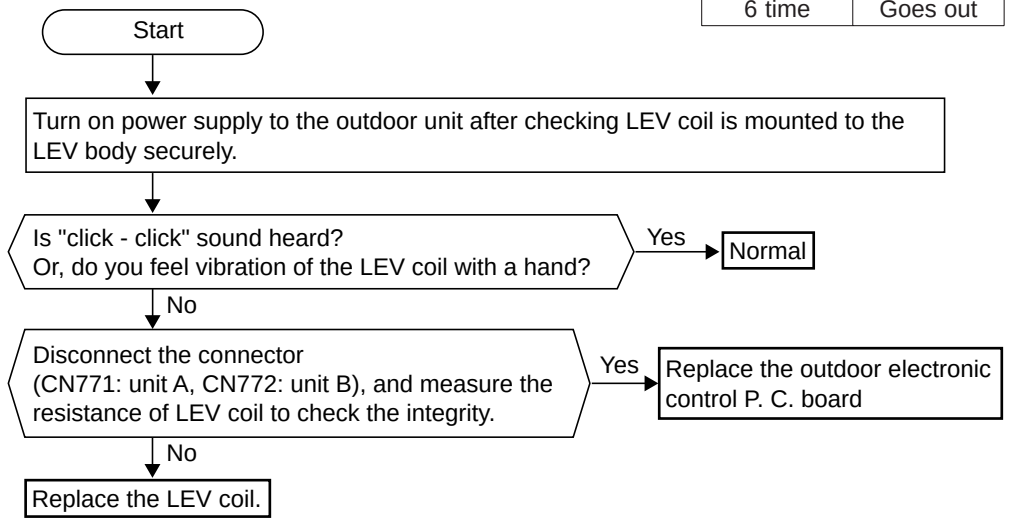
• When cooling, heat exchanger of non-operating indoor unit frosts.
• When heating, non-operating indoor unit get warm.

Ⓜ Check of LEV

<MXZ-A18WV>

LED display:

LED1	LED2
Lighting	Lighting
6 time	Goes out


Start
Turn on power supply to the outdoor unit after checking LEV coil is mounted to the LEV body securely.
Is "click - click" sound heard?
Or, do you feel vibration of the LEV coil with a hand?
Yes
Normal
No
Disconnect the connector
(CN771: unit A, CN772: unit B), and measure the resistance of LEV coil to check the integrity.
Yes
Replace the outdoor electronic control P. C. board
No
Replace the LEV coil.

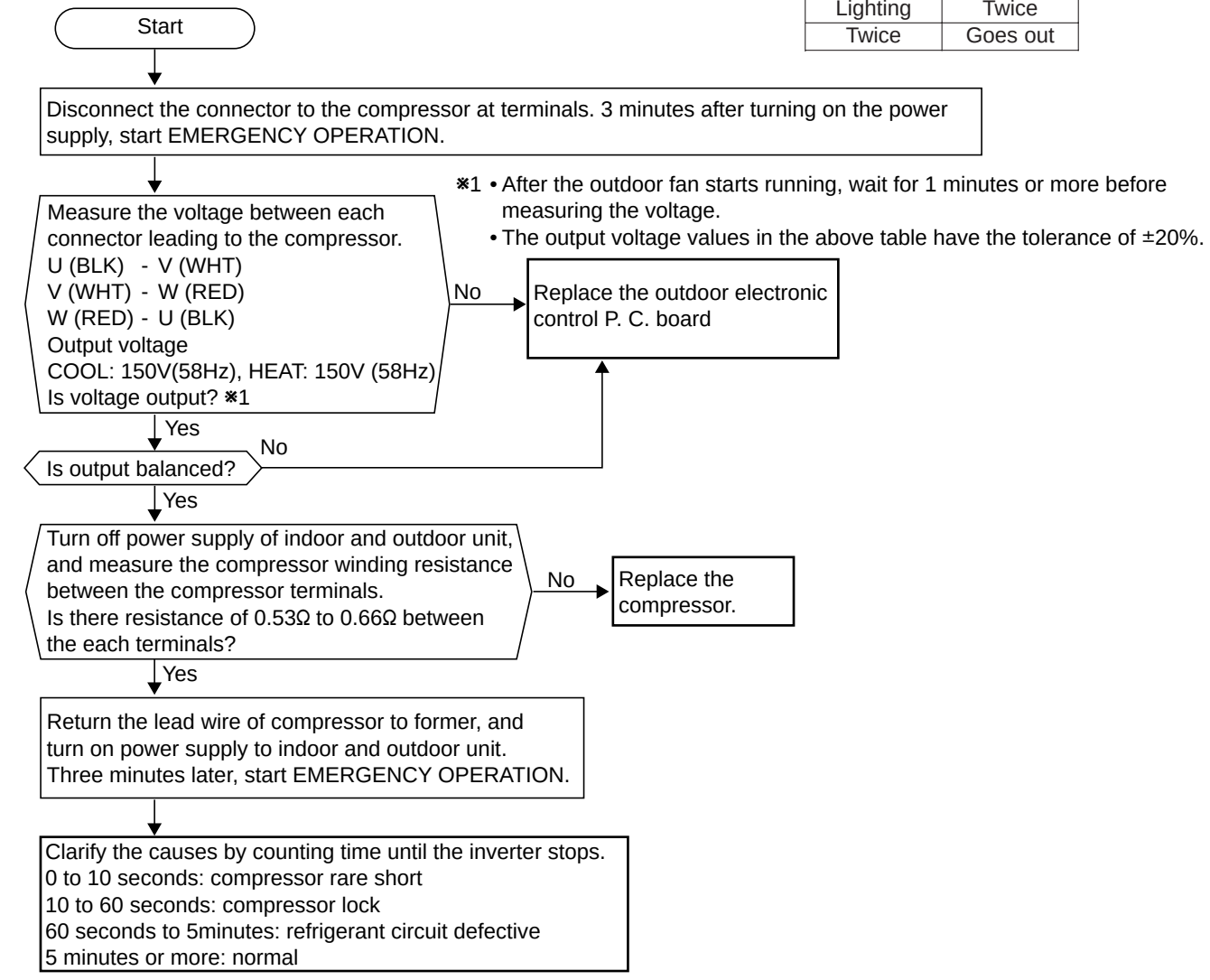
• When heating, room does not get warm.
• When cooling, room does not get cool.

Ⓝ Check of inverter/ compressor

<MXZ-A18WV>

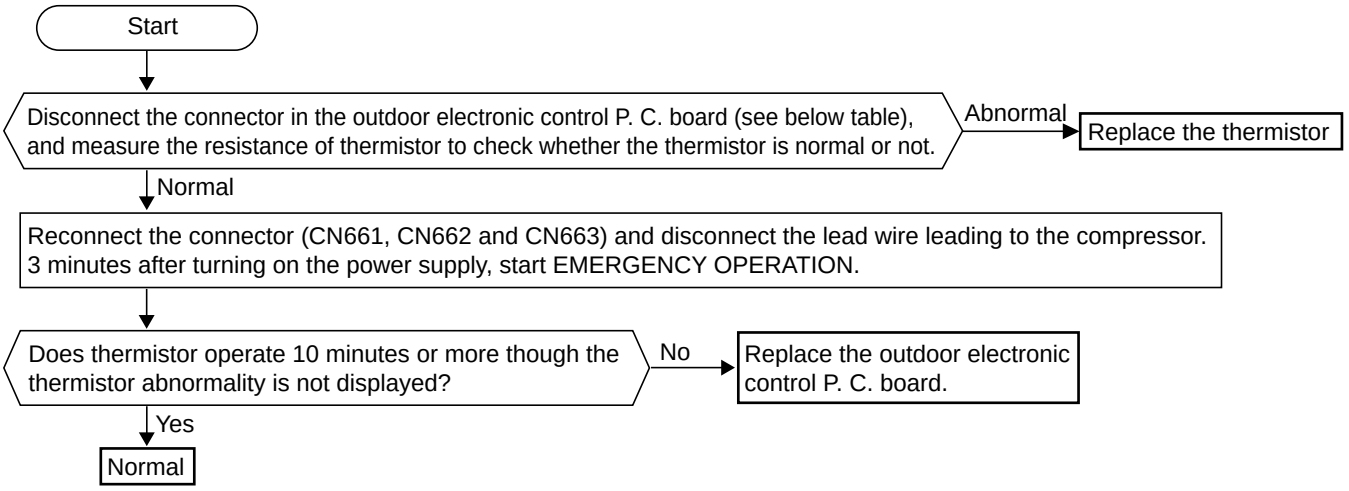
LED display:

LED1	LED2
Lighting	Lighting
Lighting	Twice
Twice	Goes out


Start
Disconnect the connector to the compressor at terminals. 3 minutes after turning on the power supply, start EMERGENCY OPERATION.
※1 • After the outdoor fan starts running, wait for 1 minutes or more before measuring the voltage.
• The output voltage values in the above table have the tolerance of ±20%.
Measure the voltage between each connector leading to the compressor.
U (BLK) - V (WHT)
V (WHT) - W (RED)
W (RED) - U (BLK)
Output voltage
COOL: 150V(58Hz), HEAT: 150V (58Hz)
Is voltage output? ※1
No
Replace the outdoor electronic control P. C. board
Yes
Is output balanced?
No
Yes
Turn off power supply of indoor and outdoor unit, and measure the compressor winding resistance between the compressor terminals.
Is there resistance of 0.53Ω to 0.66Ω between the each terminals?
No
Replace the compressor.
Yes
Return the lead wire of compressor to former, and turn on power supply to indoor and outdoor unit.
Three minutes later, start EMERGENCY OPERATION.
Clarify the causes by counting time until the inverter stops.
0 to 10 seconds: compressor rare short
10 to 60 seconds: compressor lock
60 seconds to 5minutes: refrigerant circuit defective
5 minutes or more: normal

• When thermistor is abnormal. (When the LED display is a table below.)

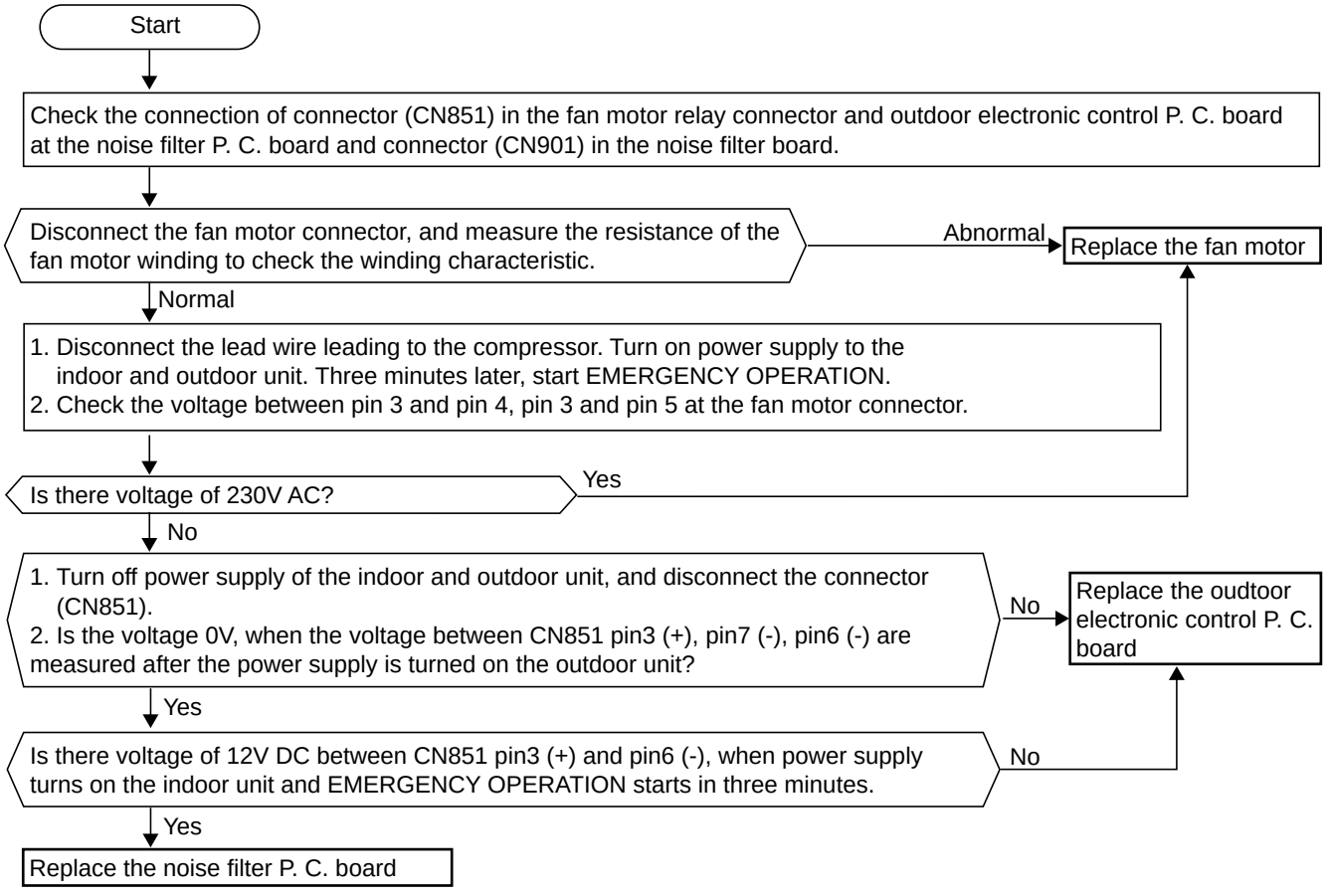
Ⓞ Check of outdoor unit thermistor <MXZ-A18WV>


Start
Disconnect the connector in the outdoor electronic control P. C. board (see below table), and measure the resistance of thermistor to check whether the thermistor is normal or not.
Abnormal
Replace the thermistor
Normal
Reconnect the connector (CN661, CN662 and CN663) and disconnect the lead wire leading to the compressor. 3 minutes after turning on the power supply, start EMERGENCY OPERATION.
Does thermistor operate 10 minutes or more though the thermistor abnormality is not displayed?
No
Replace the outdoor electronic control P. C. board.
Yes
Normal

Thermistor	Symbol	Connector, Pin No.
Discharge temperature thermistor	RT61	Between CN662 pin3 and pin4
Defrost thermistor	RT62	Between CN662 pin1 and pin2
Evaporation temperature thermistor	RT63	Between CN662 pin5 and pin6
High-pressure protect thermistor	RT68	Between CN662 pin7 and pin8
Gas pipe temperature A thermistor	RT6A	Between CN661 pin1 and pin2
Gas pipe temperature B thermistor	RT6B	Between CN661 pin3 and pin4
Fin temperature thermistor	RT65	Between CN663 pin1 and pin2

• Fan motor does not operate or stops operating shortly after starting the operation.

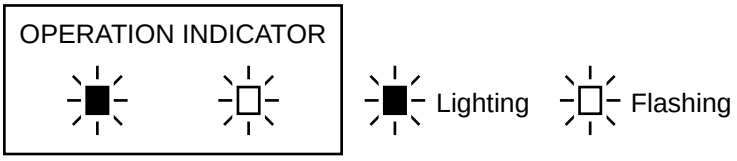
Ⓟ Check of outdoor fan motor <MXZ-A18WV>


Start
Check the connection of connector (CN851) in the fan motor relay connector and outdoor electronic control P. C. board at the noise filter P. C. board and connector (CN901) in the noise filter board.
Disconnect the fan motor connector, and measure the resistance of the fan motor winding to check the winding characteristic.
Abnormal
Replace the fan motor
Normal
1. Disconnect the lead wire leading to the compressor. Turn on power supply to the indoor and outdoor unit. Three minutes later, start EMERGENCY OPERATION.
2. Check the voltage between pin 3 and pin 4, pin 3 and pin 5 at the fan motor connector.
Is there voltage of 230V AC?
Yes
No
1. Turn off power supply of the indoor and outdoor unit, and disconnect the connector (CN851).
2. Is the voltage 0V, when the voltage between CN851 pin3 (+), pin7 (-), pin6 (-) are measured after the power supply is turned on the outdoor unit?
No
Replace the oudtoor electronic control P. C. board
Yes
Is there voltage of 12V DC between CN851 pin3 (+) and pin6 (-), when power supply turns on the indoor unit and EMERGENCY OPERATION starts in three minutes.
No
Yes
Replace the noise filter P. C. board

ⓠ The other cases <MXZ-A18WV>

① Indoor unit dose not operate. (different modes)

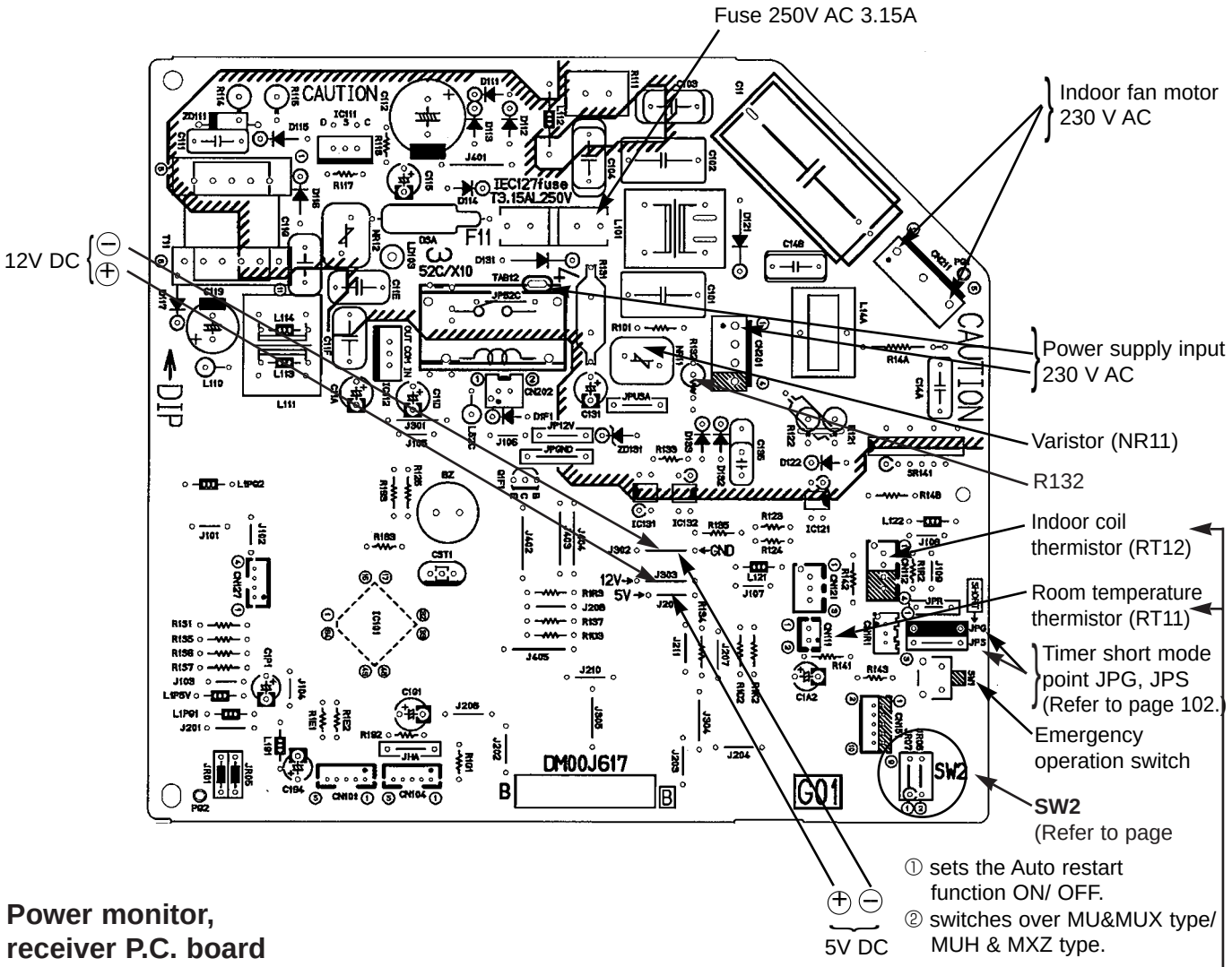
- When you try to run two indoor unit simultaneously, one for cooling and the other for heating, the unit which transmits signal to the outdoor units earlier decides the operation mode. The other unit indicates as shown in the figure below.
- When the above situation occurs, set all the indoor units to the same mode, turn OFF the indoor units, and then turn them back ON.
- Though the top of the indoor unit sometimes gets warm, this does not mean malfunction. The reason is that the refrigerant gas continuously flows into the indoor unit even while it is not operating.



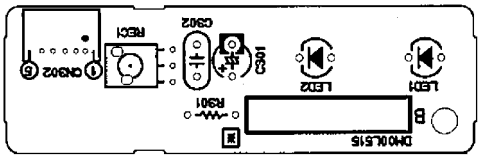
TEST POINT DIAGRAM AND VOLTAGE

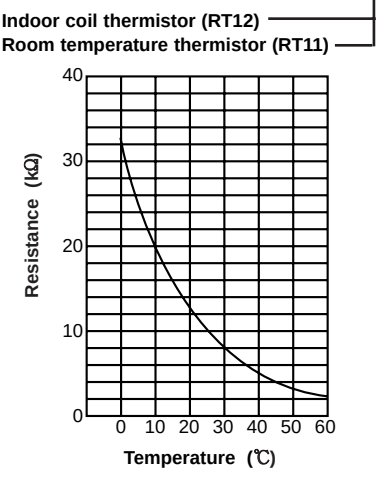
MSC-A07WV - E1
MSC-A09WV - E1
MSC-A12WV - E1

Indoor electronic control P.C. board

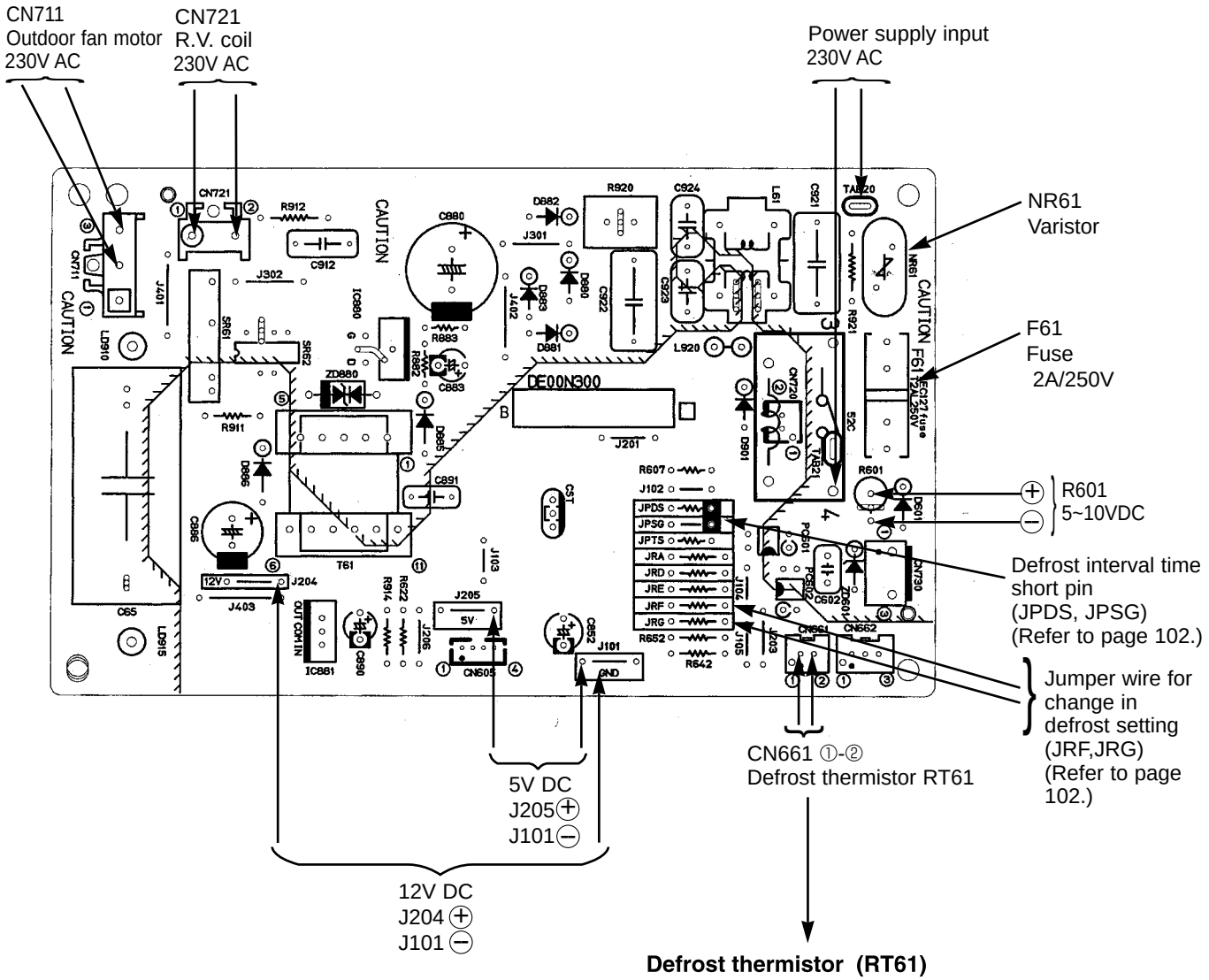


Power monitor, receiver P.C. board

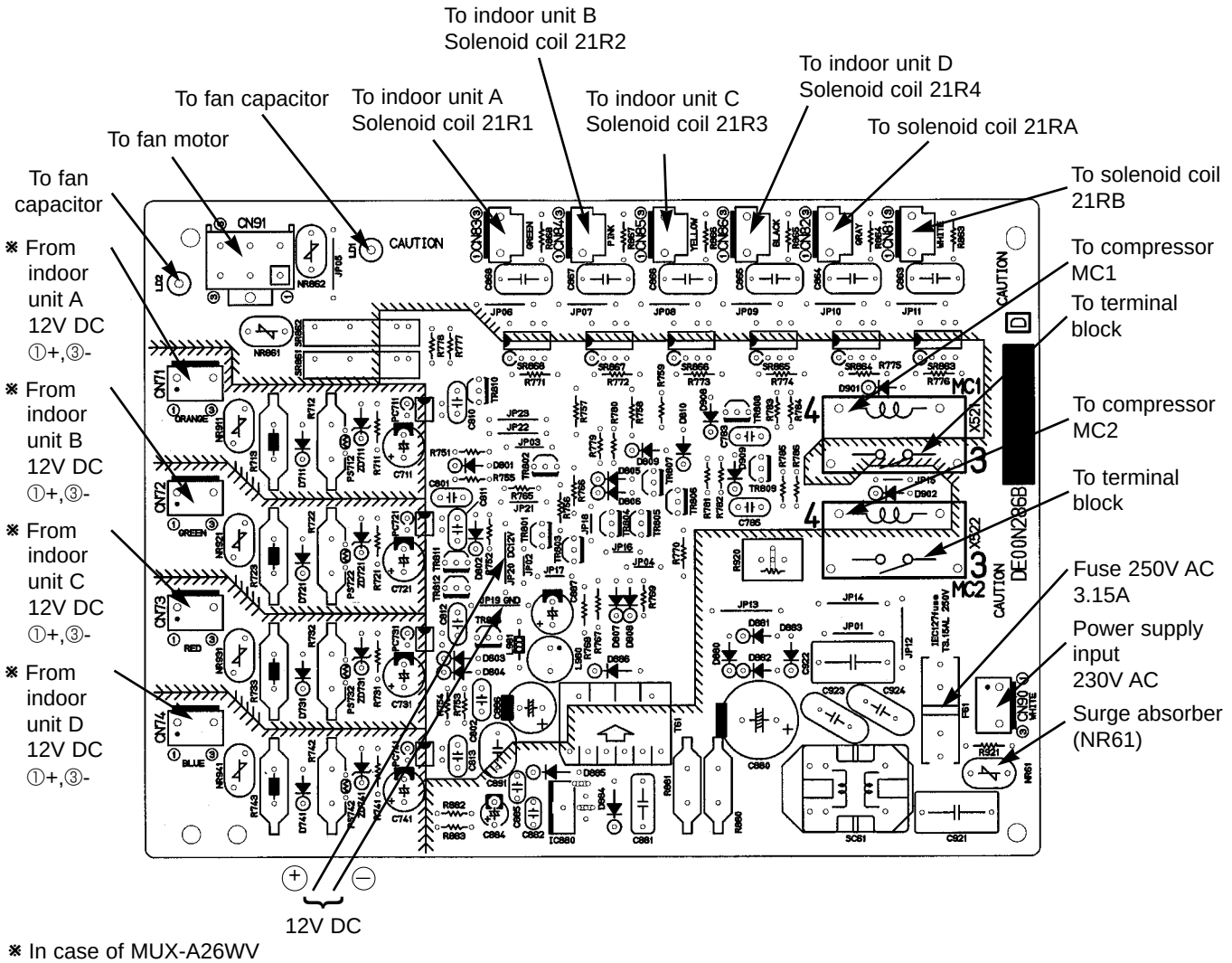




MUH-A07WV -E1
MUH-A09WV -E1
MUH-A12WV -E1
Outdoor deicer P.C. board



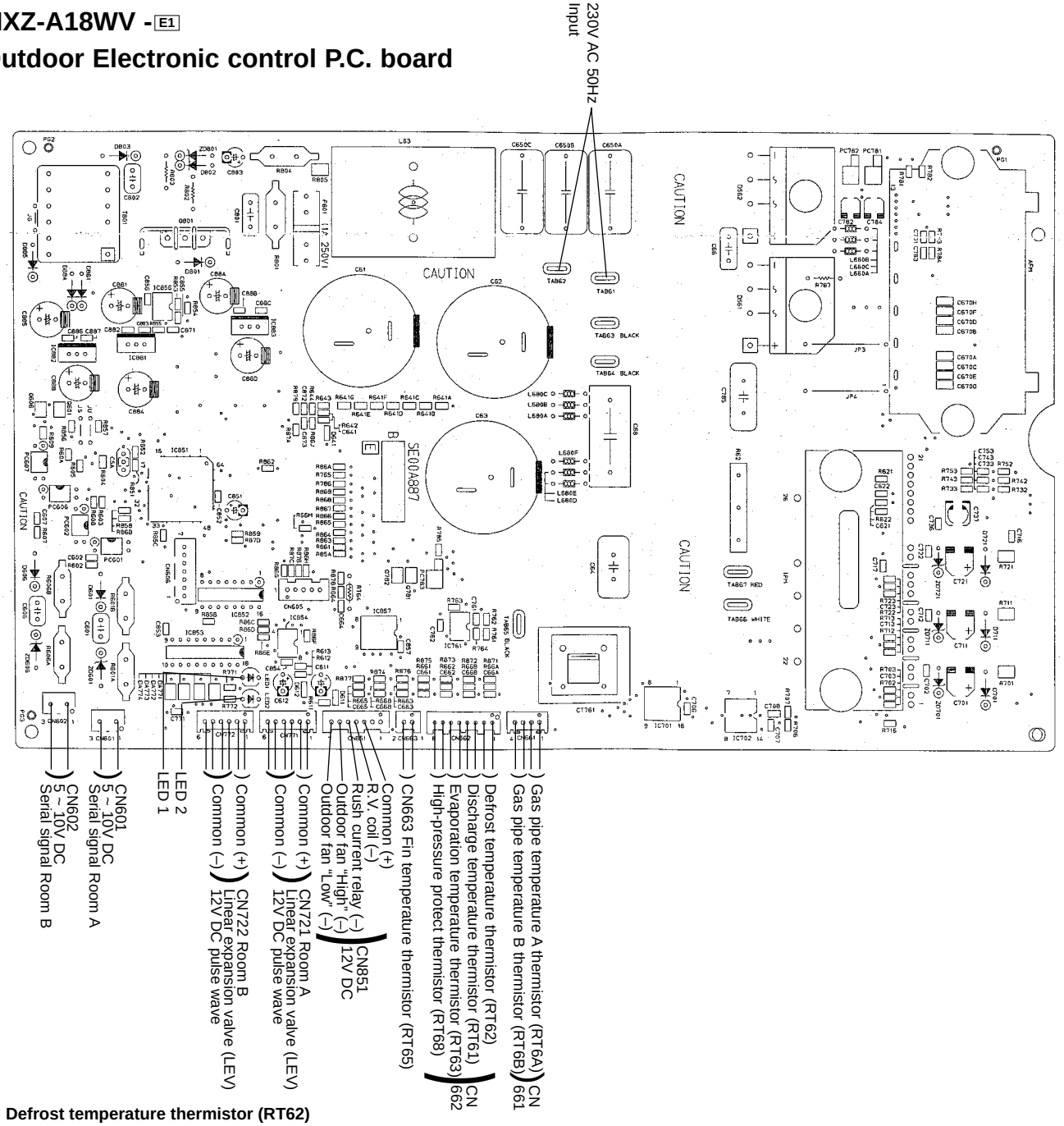
MUX-A19WV - E1
MUX-A20WV - E1
MUX-A25WV - E1
MUX-A26WV - E1
Outdoor control P.C. board



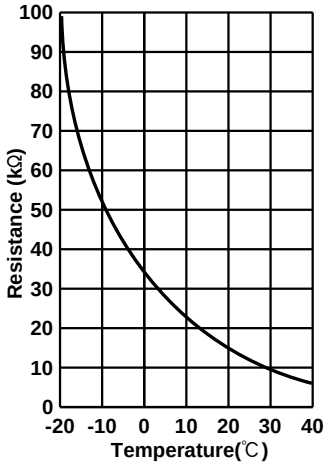
※ In case of MUX-A26WV

MXZ-A18WV - E1

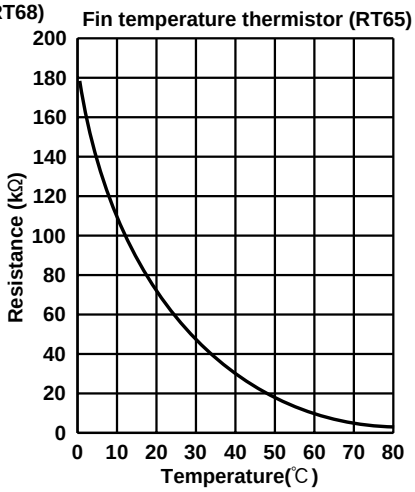
Outdoor Electronic control P.C. board



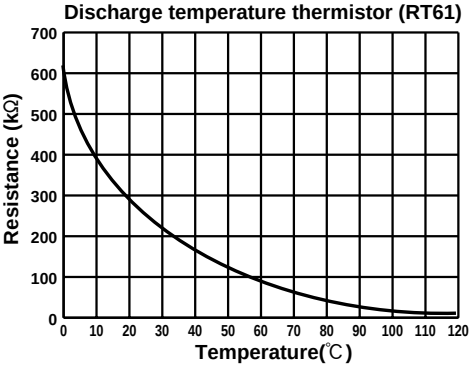
Defrost temperature thermistor (RT62)
Evaporation temperature thermistor (RT63)
Gas pipe temperature thermistor (RT6A,6B)
High-pressure protection thermistor (RT68)



Fin temperature thermistor (RT65)

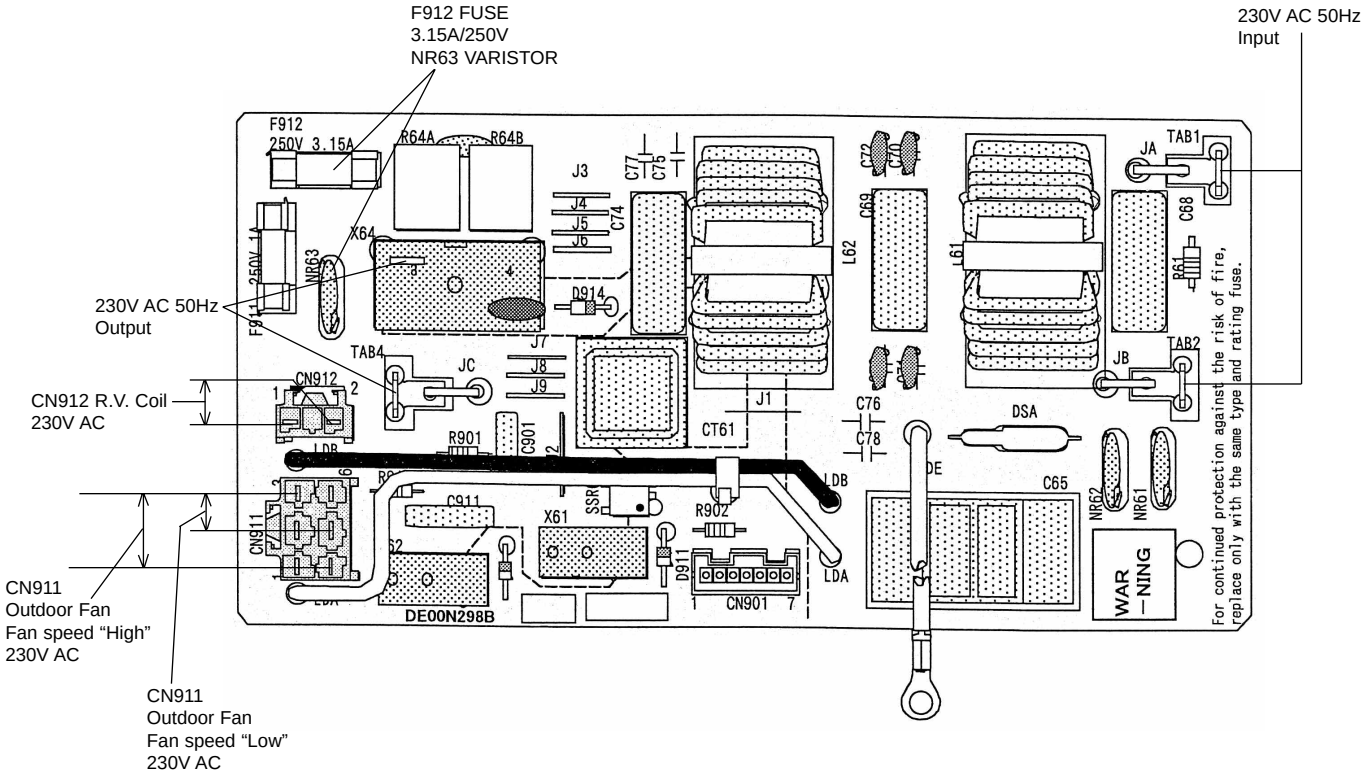


Discharge temperature thermistor (RT61)



MXZ-A18WV - E1

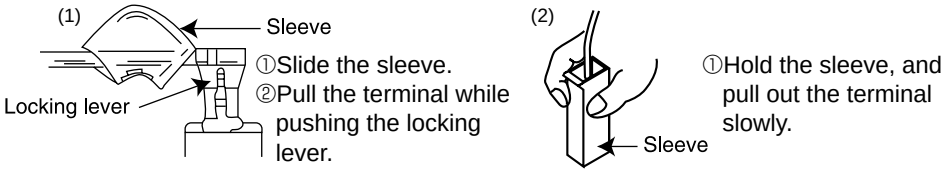
Outdoor Noise filter P.C.board



14 DISASSEMBLY INSTRUCTIONS

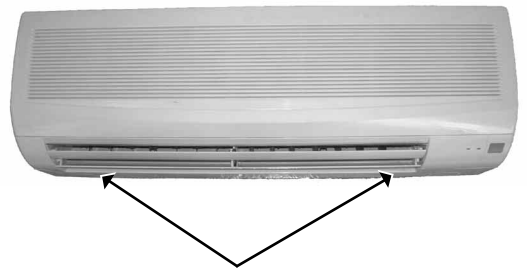
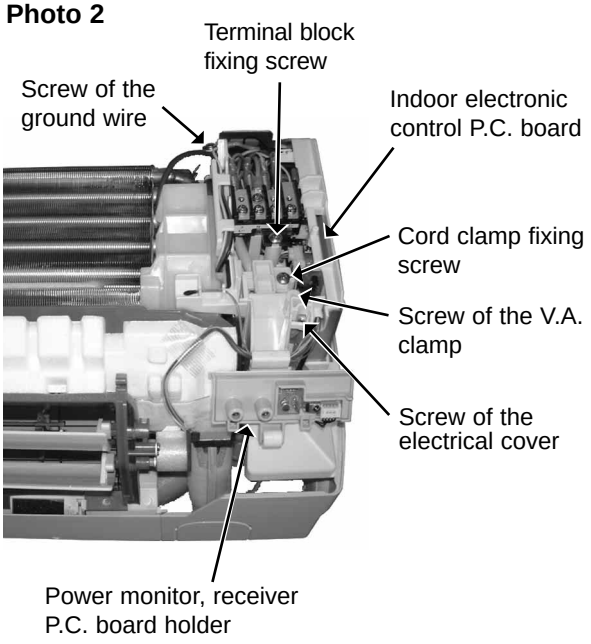
<"Terminal with lock mechanism" Detaching points>

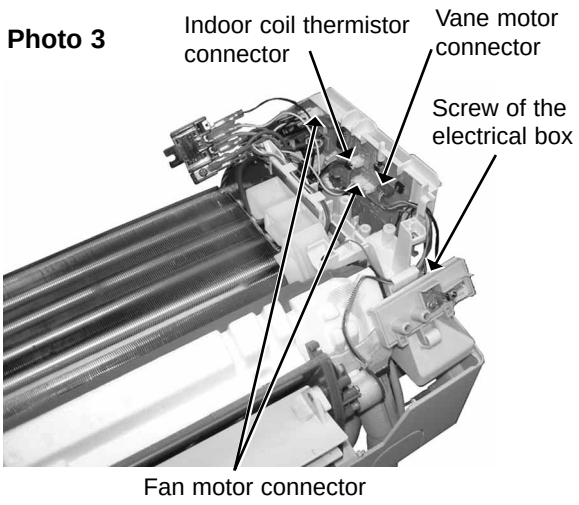
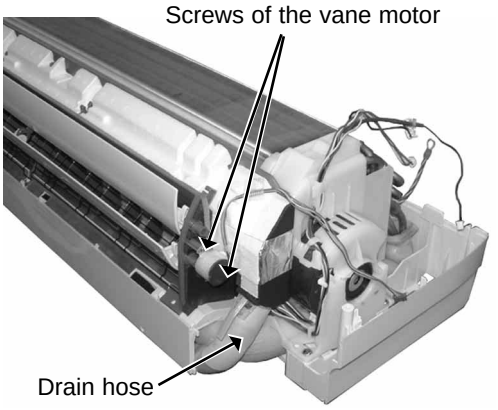
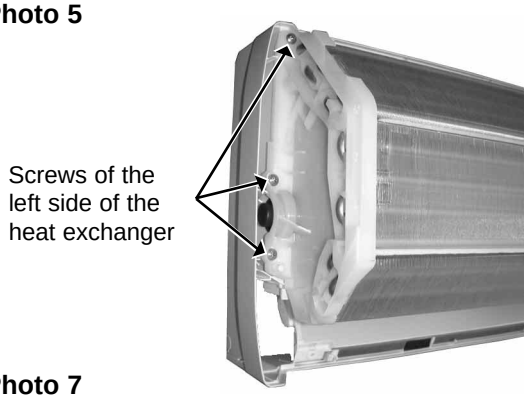
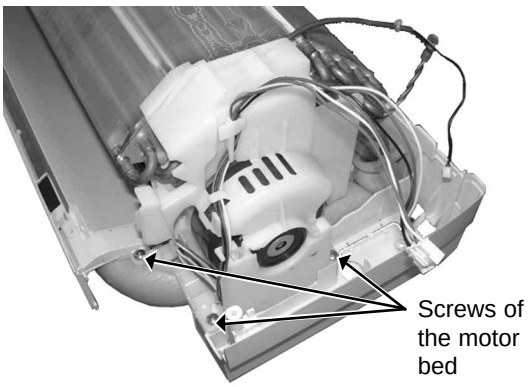
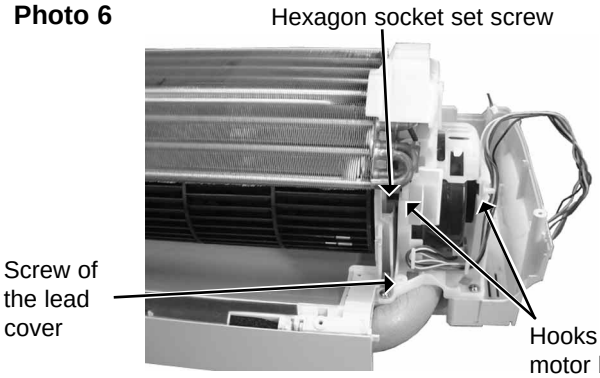
In case of terminal with lock mechanism, detach the terminal as shown below.



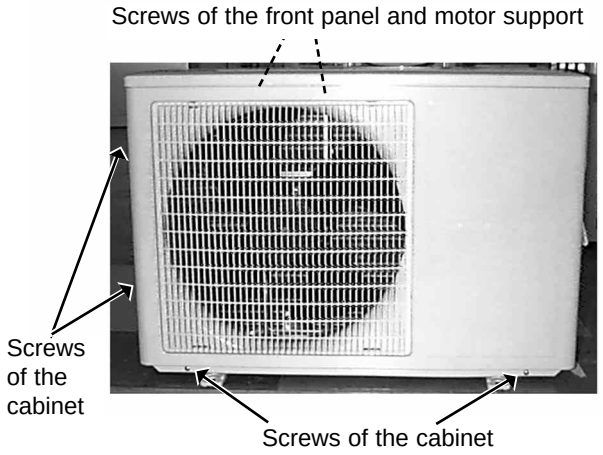
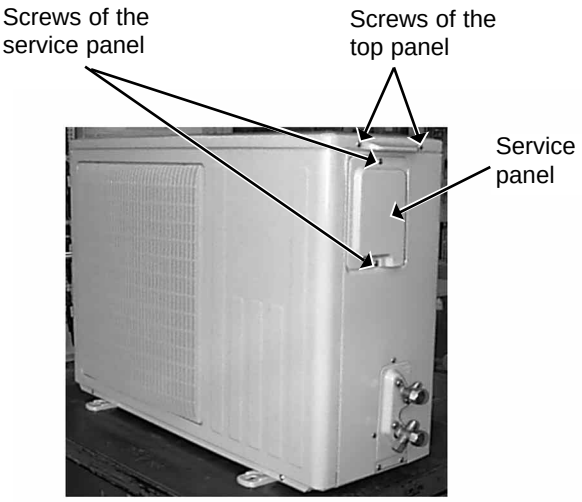
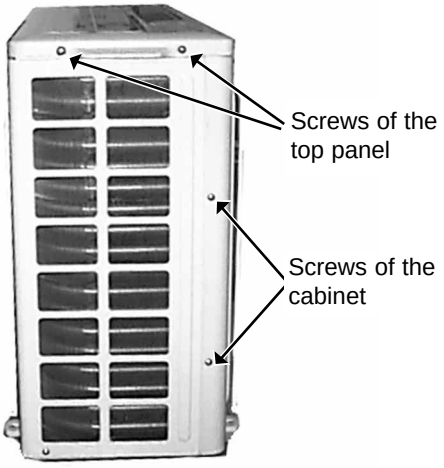
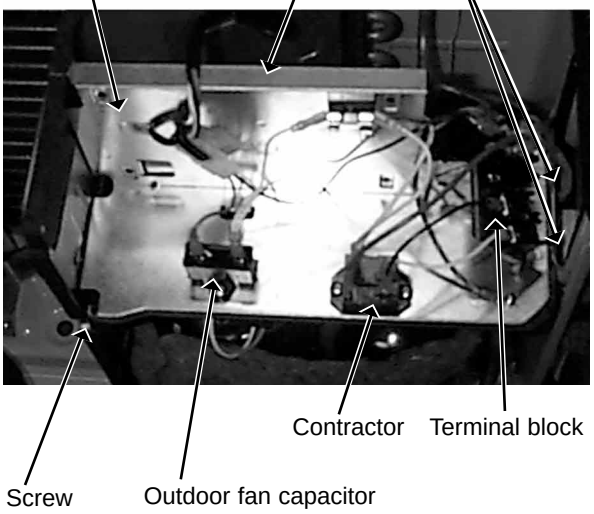
14-1. MSC-A07WV -E1 MSC-A09WV -E1 MSC-A12WV -E1 INDOOR UNIT

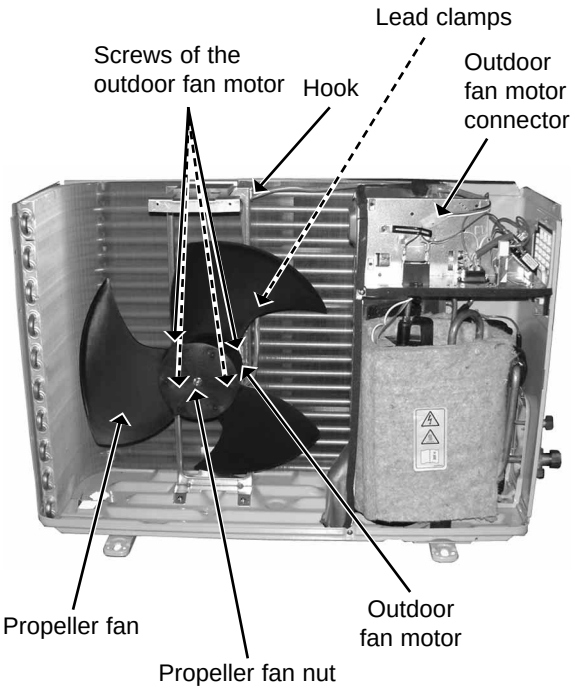
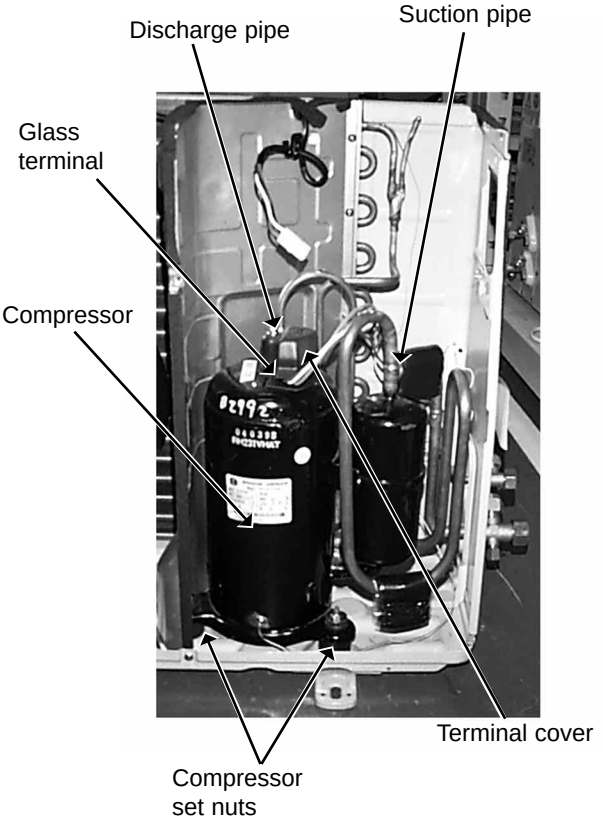
NOTE : These photos are MS-A09WV. Other models are almost the same as MS-S09WV.

OPERATING PROCEDURE	PHOTOS
1. Removing the front panel (1) Remove the screw caps of the front panel. Remove the screws. (2) Pull the panel down to your side slightly and unhook the catches at the top.	**Photo 1**  Screws of the front panel
2. Removing the electronic control P.C. board and the power monitor, receiver P.C. board **NOTE :** In case of removing only indoor electronic control P.C. board, work (3) is not necessary. (1) Remove the front panel. (Refer to 1) (2) Remove the power monitor, receiver P.C. board holder from the bottom of electrical box. (3) Open the power monitor, receiver P.C. board holder and remove the power monitor, receiver P.C. board. (4) Remove the screw of the electrical cover and the electrical cover. (5) Remove the screw of the V.A. clamp and the V.A. clamp. (6) Remove the screw of the cord clamp and the cord clamp. (7) Remove the screw of the terminal block. (8) Remove the screw of the ground wire. (9) Pull out indoor electronic control P.C. board slightly. (10) Disconnect all (except CN101) the connectors on the electronic control P.C. board. (11) Remove the electronic control P.C. board. (12) Disconnect the connector of power monitor, receiver P.C. board (CN101) on the electronic control P.C. board.	**Photo 2**  Terminal block fixing screw Screw of the ground wire Indoor electronic control P.C. board Cord clamp fixing screw Screw of the V.A. clamp Screw of the electrical cover Power monitor, receiver P.C. board holder

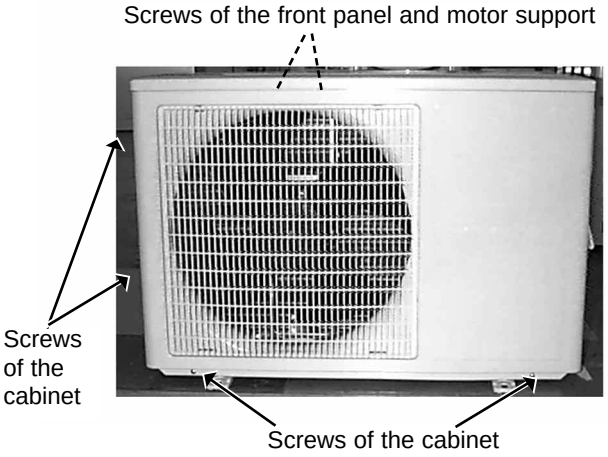
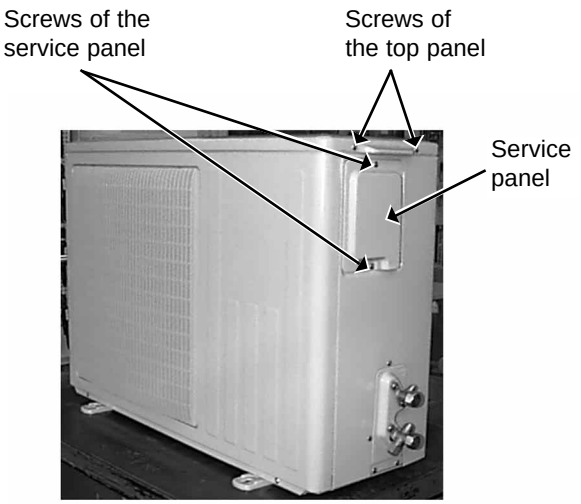
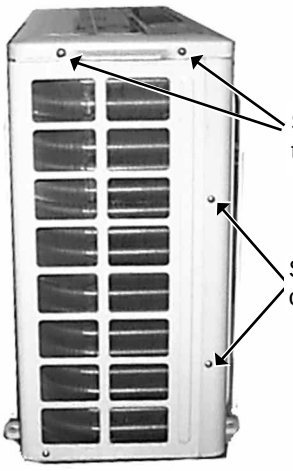
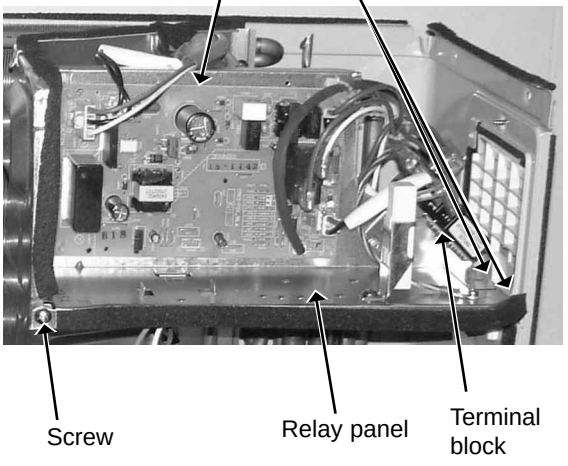
OPERATING PROCEDURE	PHOTOS
3. Removing the electrical box (1) Remove the front panel. (Refer to 1.) (2) Remove the electrical cover. (Refer to 2.) (3) Remove the V.A. clamp. (Refer to 2.) (4) Remove the cord clamp. (Refer to 2.) (5) Remove the terminal block. (Refer to 2.) (6) Remove the screw of ground wire. (Refer to 2.) (7) Disconnect the connector of the indoor coil thermistor (CN112), the fan motor connector (CN211 and CN121) and the vane motor connector (CN151) on the electronic control P.C. board. (8) Remove the fan motor lead wire and indoor coil thermistor from the electrical box. (9) Remove the lead wire of vane motor from the bottom of electrical box. (10) Remove the screw fixing the electrical box, remove the electrical box.	**Photo 3** 
4. Removing the nozzle assembly and the vane motor (1) Remove the front panel. (Refer to 1.) (2) Remove the electrical box. (Refer to 3.) (3) Pull out the drain hose from the nozzle assembly, remove the nozzle assembly. (4) Remove the screws of the vane motor, disconnect the vane motor connector. (5) Remove the vane motor.	**Photo 4** 
5. Removing the indoor fan motor and the line flow fan (1) Remove the front panel. (Refer to 1.) (2) Remove the electrical box. (Refer to 3.) (3) Pull out the drain hose from the nozzle assembly, remove the nozzle assembly. (Refer to 4.) (4) Remove the screw of the lead cover and lead cover. (5) Release the hooks to open the motor band slightly. (6) Loosen the hexagon socket set screw from the line flow fan. (7) Remove the screws fixing the motor bed, remove the fan motor with motor band and the motor bed. (8) Remove the screws fixing the left side of the heat exchanger. (9) Lift the left side of the heat exchanger. (10) Remove the line flow fan.	**Photo 5**  **Photo 7** 
Photo 6  	

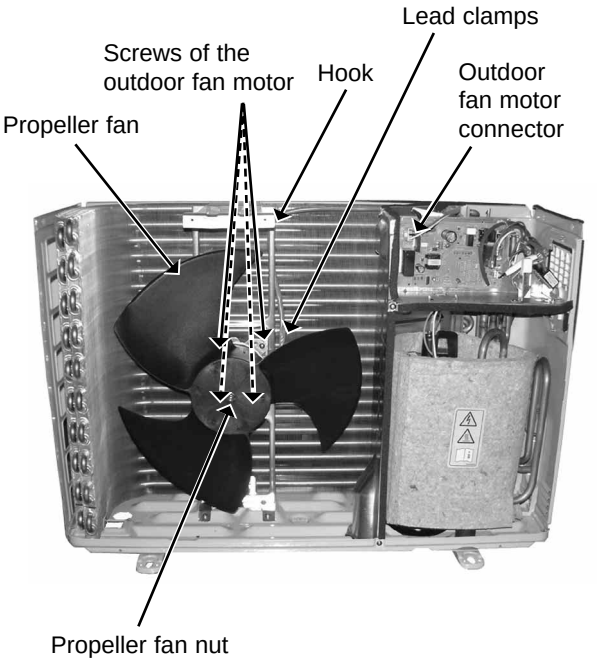
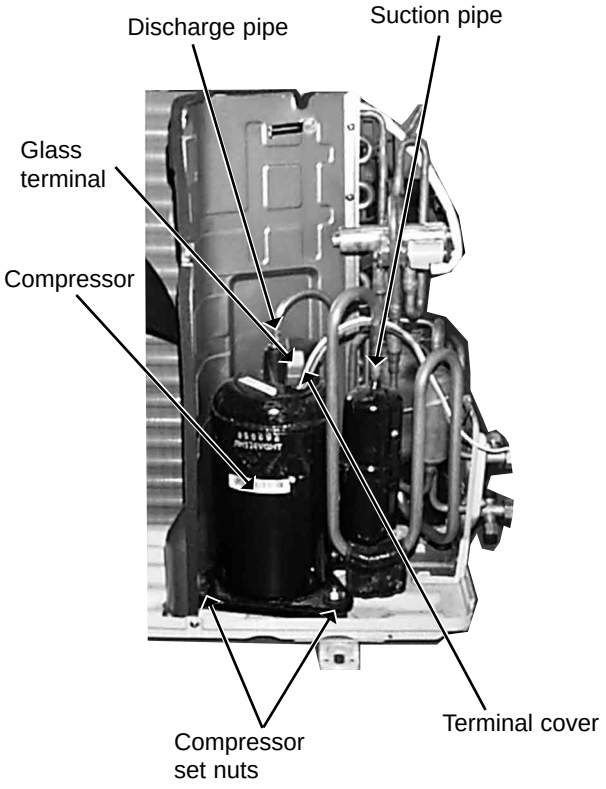
14-2. MU-A07WV -E1 MU-A09WV -E1 MU-A12WV -E1
OUTDOOR UNIT

OPERATING PROCEDURE	PHOTOS
1. Removing the cabinet (1) Remove the screws of the top panel. (2) Remove the screw of the service panel. (3) Remove the screws of the cabinet. (4) Remove the screws of the front panel and motor support. (5) Remove the service panel, and remove the screw from the insides. (6) Remove the top panel. (7) Remove the cabinet.	**Photo 1** 
Photo 3  	**Photo 2** 
2. Removing the electrical parts (1) Remove the service panel and the cabinet.(Refer to 1.) (2) Remove the following parts. • Compressor capacitor (C1) • Outdoor fan capacitor (C2) • Terminal block	**Photo 4** 

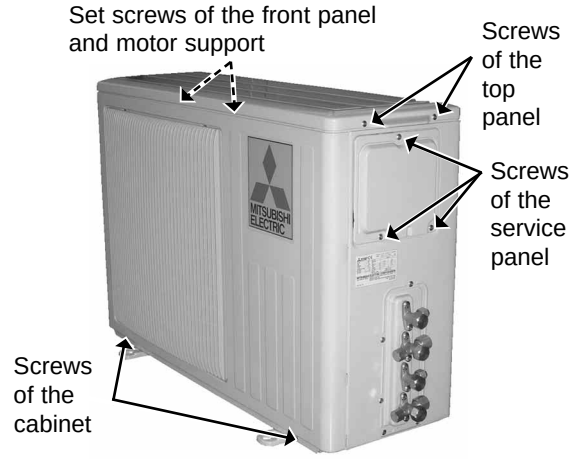
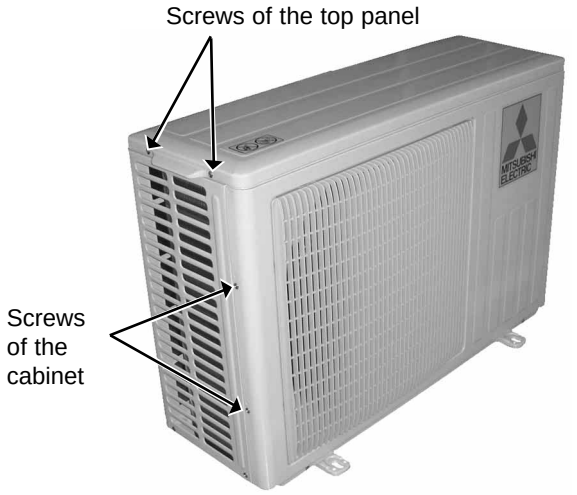
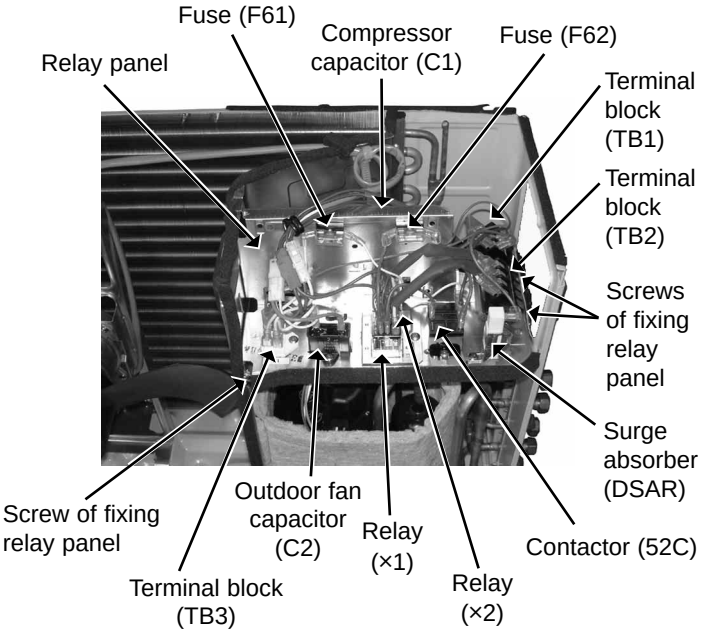
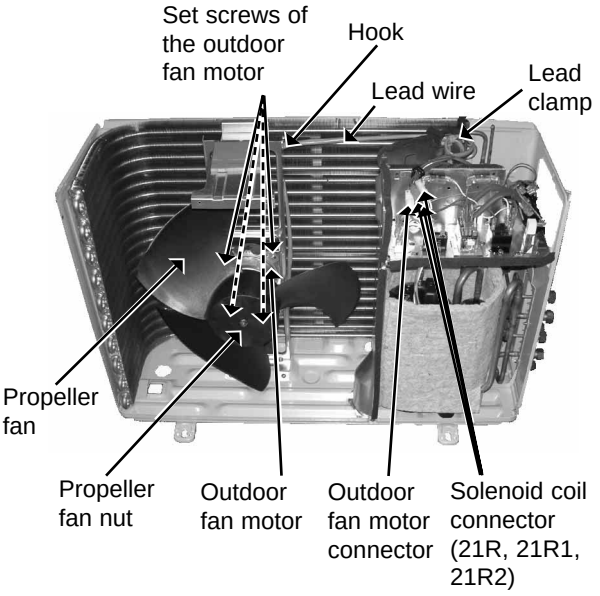
OPERATING PROCEDURE	PHOTOS
3. Removing the propeller fan and the outdoor fan motor (1) Remove the cabinet. (Refer to 1.) (2) Remove the propeller fan nut. (3) Remove the propeller fan. **NOTE : Loose the propeller fan in the rotating direction for removal.** When attaching the propeller fan, align the mark on the propeller fan and the motor shaft cut section. Set the propeller fan in position by using the cut on the shaft and the mark on the propeller fan. (4) Remove lead clamps and disconnect the outdoor fan motor connector. (5) Remove screws fixing the fan motor. (6) Remove the outdoor fan motor.	**Photo 5** 
4. Removing the compressor (1) Remove the cabinet. (Refer to 1.) (2) Remove the relay panel. (3) Remove the soundproof felt. (4) Remove the terminal cover on the compressor. (5) Disconnect lead wires from the glass terminal of the compressor. (6) Recover gas from the refrigerant circuit. (7) Disconnect the welded part of the discharge pipe. (8) Disconnect the welded part of the suction pipe. (9) Remove nuts fixing the compressor. (10) Remove the compressor. **NOTE** ● Before using a burner, reclaim gas from the pipes until the pressure gauge shows 0 kg/cm^2 (0 MPa) . ● Use the burner under the condition that gas can be recovered even when the inner pressure rises by heat.	**Photo 6** 

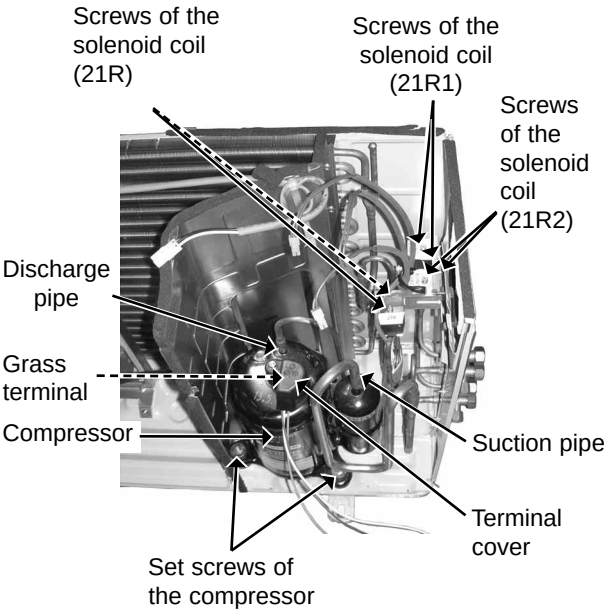
14-3. MUH-A07WV -E1 MUH-A09WV -E1 MUH-A12WV -E1 OUTDOOR UNIT

OPERATING PROCEDURE	PHOTOS
1. Removing the cabinet (1) Remove the screws of the top panel. (2) Remove the screw of the service panel. (3) Remove the screws of the cabinet. (4) Remove the screws of the front panel and motor support. (5) Remove the service panel, and remove the screw from the insides. (6) Remove the top panel. (7) Remove the cabinet.	**Photo 1** 
Photo 3  	**Photo 2** 
2. Removing the deicer P.C. board (1) Remove the service panel and the cabinet. (2) Disconnect all the connectors and the terminals on the deicer P.C. board. (3) Remove the deicer P.C. board.	**Photo 4** 

OPERATING PROCEDURE	PHOTOS
3. Removing the propeller fan and the outdoor fan motor (1) Remove the cabinet. (Refer to 1.) (2) Remove the propeller fan nut. (3) Remove the propeller fan. **NOTE : Loose the propeller fan in the rotating direction for removal.** When attaching the propeller fan, align the mark on the propeller fan and the motor shaft cut section. Set the propeller fan in position by using the cut on the shaft and the mark on the propeller fan. (4) Remove lead clamps and disconnect the outdoor fan motor connector. (5) Remove screws fixing the fan motor. (6) Remove the outdoor fan motor.	**Photo 5** 
4. Removing the compressor (1) Remove the cabinet. (Refer to 1.) (2) Remove the relay panel. (3) Remove the soundproof felt. (4) Remove the terminal cover on the compressor. (5) Disconnect lead wires from the glass terminal of the compressor. (6) Recover gas from the refrigerant circuit. (7) Disconnect the welded part of the discharge pipe. (8) Disconnect the welded part of the suction pipe. (9) Remove nuts fixing the compressor. (10) Remove the compressor. **NOTE** ● Before using a burner, reclaim gas from the pipes until the pressure gauge shows 0 kg/cm^2 (0 MPa) . ● Use the burner under the condition that gas can be recovered even when the inner pressure rises by heat.	**Photo 6** 

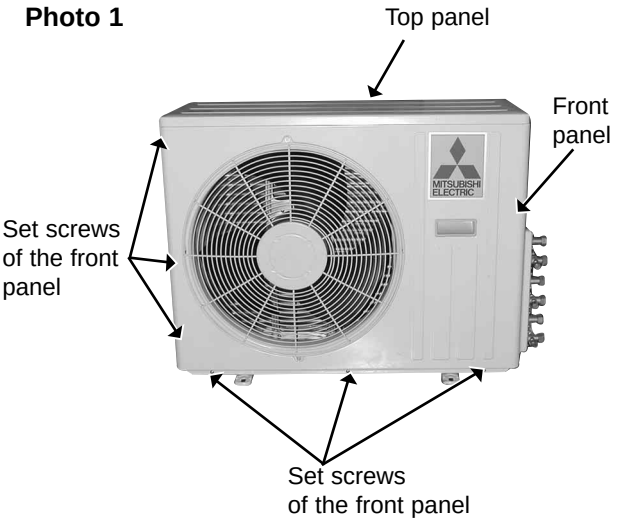
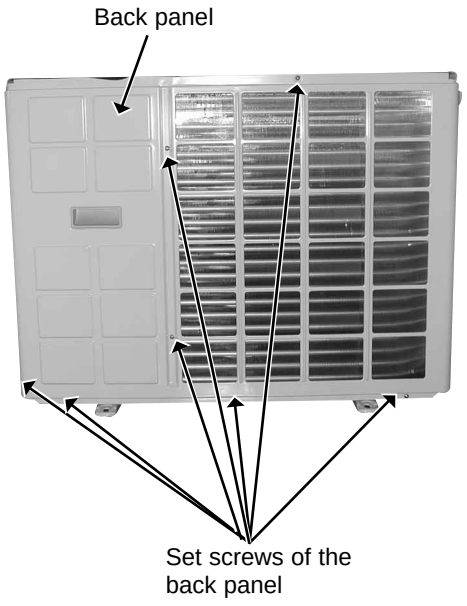
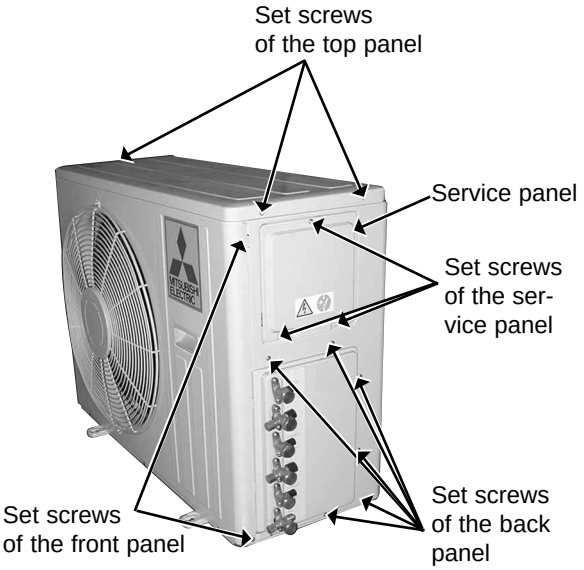
14-4. MUX-A10WV - E1
OUTDOOR UNIT

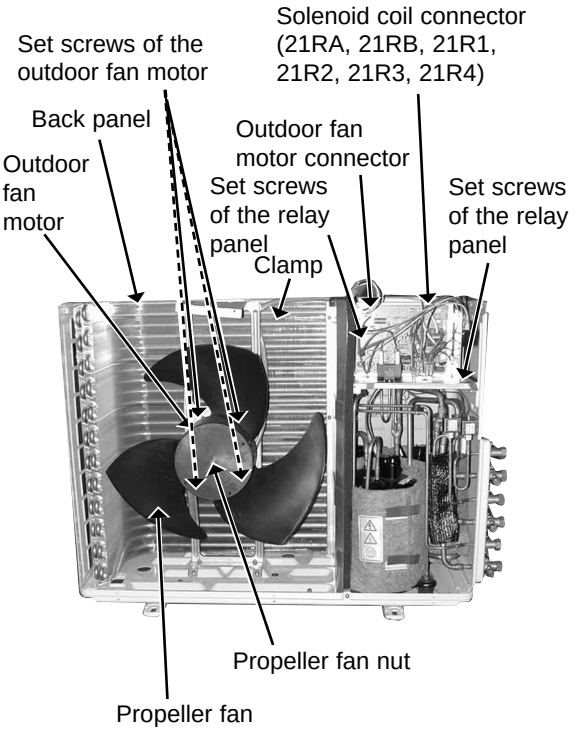
OPERATING PROCEDURE	PHOTOS
1. Removing the cabinet (1) Remove the screws of the top panel. (2) Remove the screw of the service panel. (3) Remove the screws of the cabinet. (4) Remove the screws of the front panel and motor support. (5) Remove the service panel, and remove the screw from the insides. (6) Remove the top panel. (7) Remove the cabinet.	**Photo 1**  **Photo 2** 
Photo 3  	
2. Removing the relay panel (1) Remove the service panel and the cabinet.(Refer to 1.) (2) Remove the following connectors. • Outdoor fan motor • Solenoid coil (21R, 21R1, 21R2)	**Photo 4** 

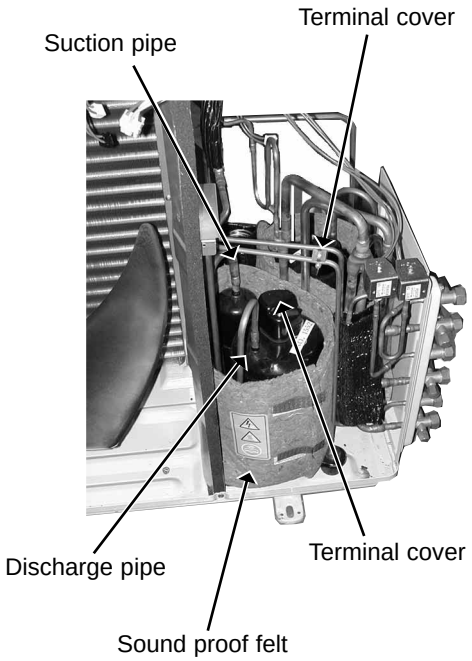
OPERATING PROCEDURE	PHOTOS
3. Removing the propeller fan and the outdoor fan motor (1) Remove the cabinet. (Refer to 1.) (2) Remove the propeller fan nut. (3) Remove the propeller fan. **NOTE : Loose the propeller fan in the rotating direction for removal.** When attaching the propeller fan, align the mark on the propeller fan and the motor shaft cut section. Set the propeller fan in position by using the cut on the shaft and the mark on the propeller fan. (4) Remove lead clamps and disconnect the outdoor fan motor connector. (5) Remove screws fixing the fan motor. (6) Remove the outdoor fan motor.	**Photo 5** 
4. Removing the compressor (1) Remove the cabinet. (Refer to 1.) (2) Remove the relay panel. (3) Remove the soundproof felt. (4) Remove the terminal cover on the compressor. (5) Disconnect lead wires from the glass terminal of the compressor. (6) Recover gas from the refrigerant circuit. (7) Disconnect the welded part of the discharge pipe. (8) Disconnect the welded part of the suction pipe. (9) Remove nuts fixing the compressor. (10) Remove the compressor. **NOTE** ● Before using a burner, reclaim gas from the pipes until the pressure gauge shows 0 kg/cm^2 (0 MPa) . ● Use the burner under the condition that gas can be recovered even when the inner pressure rises by heat.	

14-5. MUX-A19WV -E1 MUX-A20WV -E1 MUX-A25WV -E1 MUX-A26WV -E1 OUTDOOR UNIT

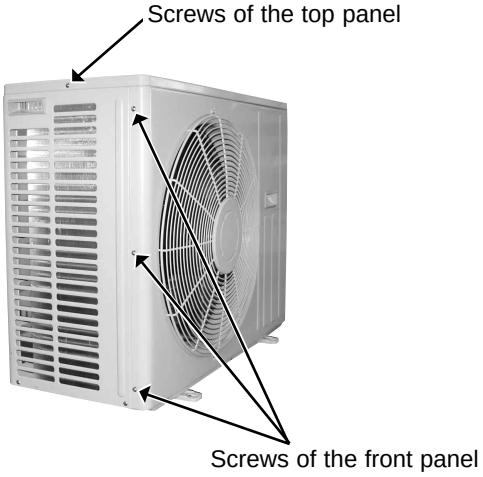
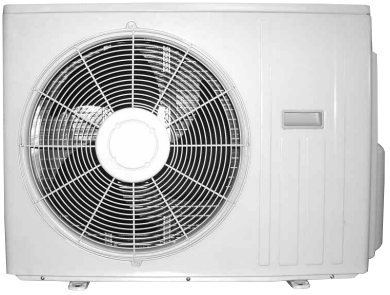
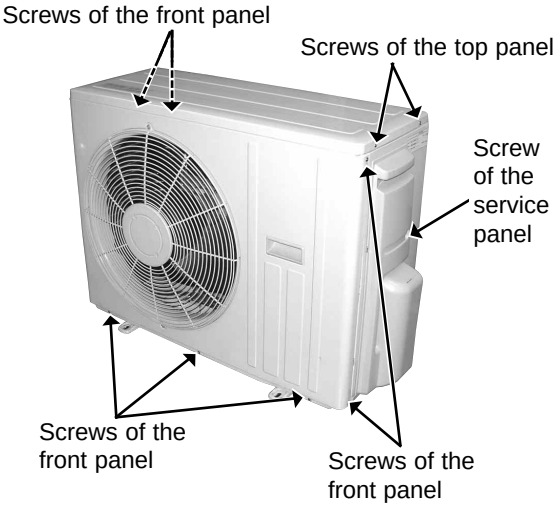
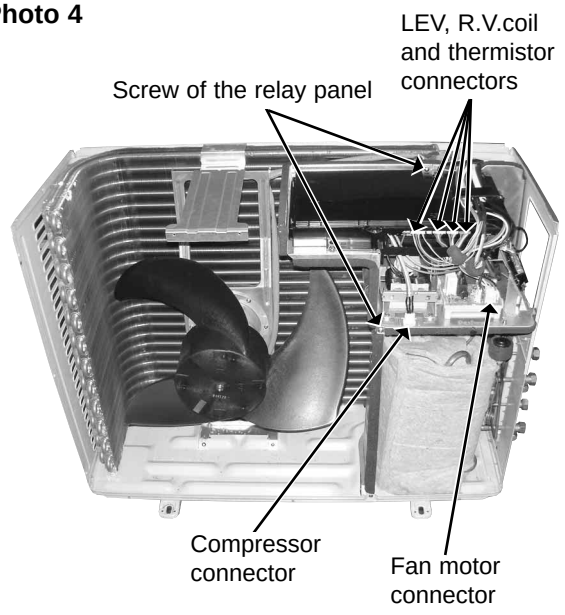
NOTE : These photos are MUX-A20WV.
Other models are almost the same as MUX-A20WV.

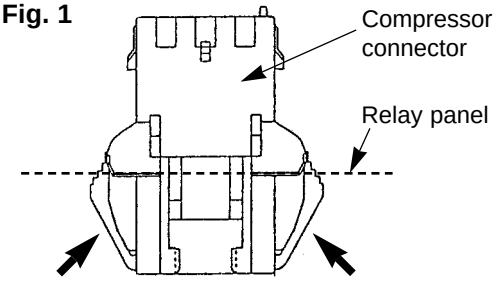
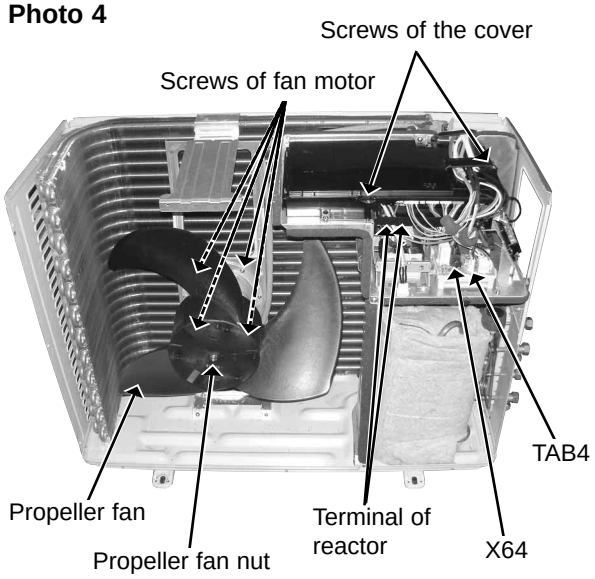
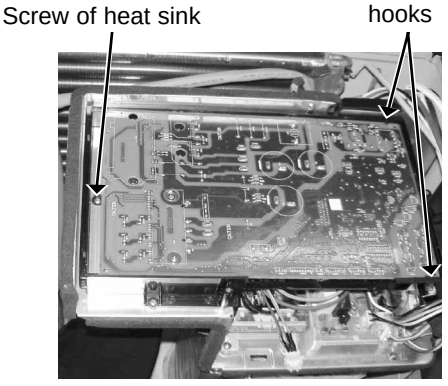
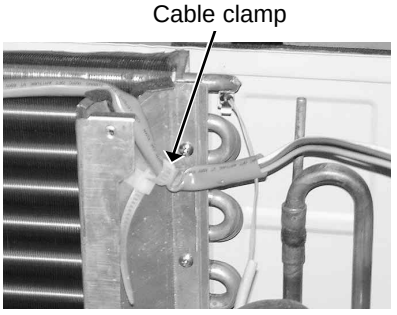
OPERATING PROCEDURE	PHOTOS
1.Removing the cabinet (1) Remove the screws of the service panel. (2) Remove the screws of the top panel. (3) Remove the service panel. (4) Remove the top panel. (5) Remove the screws of the front panel. (6) Remove the front panel. (7) Remove the screws of the back panel. (8) Remove the back panel.	**Photo 1** 
Photo 3  	**Photo 2** 

OPERATING PROCEDURE	PHOTOS
2. Removing the relay panel (1) Remove the cabinet. (Refer to 1) (2) Disconnect the following connectors. ・Outdoor fan motor ・**Only MUX-20WV** Solenoid coil (21RB, 21R3, 21R4) ・**Only MUX-26WV** Solenoid coil (21RA, 21RB, 21R1, 21R2, 21R3, 21R4)	**Photo 4** 
3. Removing the propeller fan (1) Remove the cabinet. (Refer to 1.) (2) Remove the propeller fan nut. (3) Remove the propeller fan. **NOTE : Loose the propeller fan in the rotating direction for removal.** When attaching the propeller fan, align the mark on the propeller fan and the motor shaft cut section. Set the propeller fan in position by using the cut on the shaft and the mark on the propeller fan.	
4. Removing the outdoor fan motor (1) Remove the cabinet. (Refer to 1.) (2) Remove the propeller fan. (Refer to 3.) (3) Remove the clamp of outdoor fan motor lead wire and disconnect the outdoor fan motor connector. (4) Remove the screws fixing the outdoor fan motor. (5) Remove the outdoor fan motor.	

OPERATING PROCEDURE	PHOTOS
5. Removing the compressor (A, B) (1) Remove the cabinet. (Refer to 1.) (2) Remove the relay panel. (3) Remove the soundproof felt. (4) Remove the terminal cover on the compressor. (5) Disconnect lead wires from the compressor. (6) Recover gas from the refrigerant circuit. (7) Disconnect the welded part of the discharge pipe. (8) Disconnect the welded part of the suction pipe. (9) Remove nuts fixing the compressor. (10) Remove the compressor. **NOTE** ● Before using a burner, reclaim gas from the pipes until the pressure gauge shows 0 kg/cm^2 (0 MPa) . ● Use the burner under the condition that gas can be recovered even when the inner pressure rises by heat.	**Photo 5** 
6. Removing the compressor (C) (1) Remove the cabinet. (Refer to 1.) (2) Remove the relay panel. (Refer to 2.) (3) Remove the screws fixing back panel. (4) Remove the back panel. (5) Remove the soundproof felt. (6) Remove the terminal cover on the compressor. (7) Disconnect lead wires from the compressor. (8) Recover gas from the refrigerant circuit. (9) Disconnect the welded part of the discharge pipe. (10) Disconnect the welded part of the suction pipe. (11) Remove nuts fixing the compressor. (12) Remove the compressor. **NOTE** ● Before using a burner, reclaim gas from the pipes until the pressure gauge shows 0 kg/cm^2 (0 MPa) . ● Use the burner under the condition that gas can be recovered even when the inner pressure rises by heat.	

14-6. MXZ-A18WV - E1
OUTDOOR UNIT

OPERATING PROCEDURE	PHOTOS
1. Removing the cabinet. 1. Removing the cabinet. (1) Remove the screws of the top panel. (2) Remove the top panel. (3) Remove the screw of the service panel. (4) Remove the service panel. (5) Remove the screws of the front panel. **Photo 3**  	**Photo 1**  **Photo 2** 
2. Removing the inverter assembly (1) Remove the top panel, service panel and front panel. (2) Remove Indoor/outdoor connecting wire and power supply cable. (3) Remove the compressor connector on the compressor side. (4) Remove the connectors for fan motor, LEV and thermistor R.V. coil from the electronic control P.C. board. (5) Remove the screws of the inverter assembly. (6) Remove the inverter assembly.	**Photo 4** 

OPERATING PROCEDURE	PHOTOS
3. Removing the Outdoor Electronic control P.C. board. (1) Remove the top panel, service panel and front panel. (2) Remove the connector coming out of the compressor. (3) Remove the compressor connector, compressor relay connector on the electronic control P.C. board side, terminal of reactor and terminals of TAB4 and X64 of the noise filter P.C. board coming out of the electronic control P.C. board. (Fig. 1) (4) Remove the screw fixing the cover of the electronic control P.C. board. (5) Remove the cover of the electronic control P.C. board. (6) Remove the screw fixing the heat sink. (7) Remove the hooks fixing the electronic control P.C. board. (8) Disconnect all the connectors and the terminal on the electronic control P.C. board. (9) Remove the electronic control P.C. board. **Fig. 1**  Push up the connector by holding the part shown by the arrows.	**Photo 4**  **Photo 5** 
4. Removing the fan motor (1) Remove the top panel, service panel and front panel. (2) Remove the fan motor connector (CN911) from the noise filter P.C. board. Remove the inverter assembly and then lead wires from cable clamp. (3) Remove the propeller fan nut. (4) Remove the propeller fan. (5) Remove the screws of fan motor. (6) Remove the fan motor	**Photo 6** 

OPERATING PROCEDURE	PHOTOS

5. Removing the thermistor

Discharge temperature thermistor, defrost temperature, evaporator temperature, high pressure protector, gas pipe temperature A and gas pipe temperature B

(1) Remove the top panel, service panel, front panel.
(2) Remove Indoor/outdoor connecting wire and power supply cable.
(3) Remove thermistor connector (CN661, CN662) from the electronic control P.C. board.
(4) Remove the inverter assembly.
(5) Remove the thermistor in the upper part of compressor.
(6) Remove the back panel.
(7) Remove the thermistors for defrost temperature, evaporator temperature, gas pipe temperature A and gas pipe temperature B.

Fin temperature thermistor

(1) Remove the top panel, service panel and front panel.
(2) Remove the connector coming out of the compressor.
(3) Remove the compressor connector coming out of the electronic control P.C. board. (Fig. 1)
(4) Remove the electronic control P.C. board.
(5) Remove the screws fixing the heat sink from the electronic control P.C. board. (Tightening torque IPM: M4 1.18 ±0.2[Nm] DS: M3 0.78 ±0.2[Nm] AFM: M3.5 0.98 ±0.2[Nm])
Caution: Be sure to keep silicon oil applied between the heat sink and the electronic control P.C. board away from dirt etc.

Do not wipe off silicon oil.
Otherwise the temperature of the electronic control P.C. board may rise unusually.

Photo 7

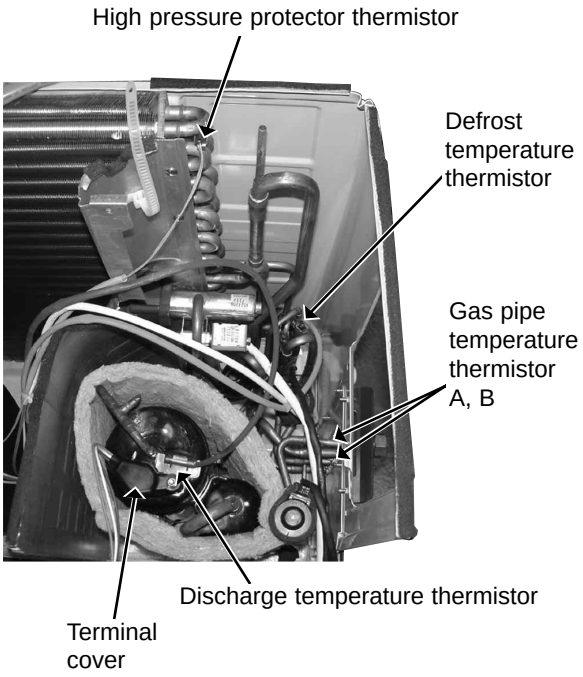


Photo 8

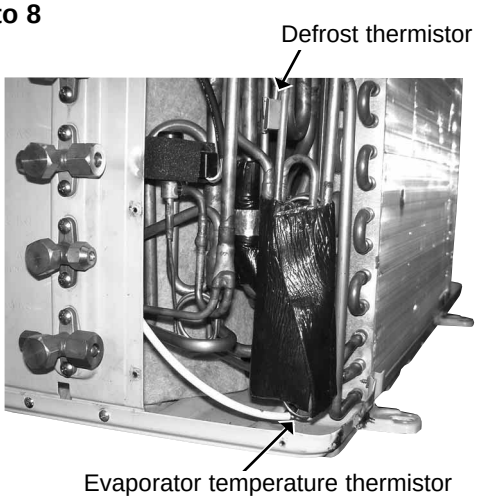
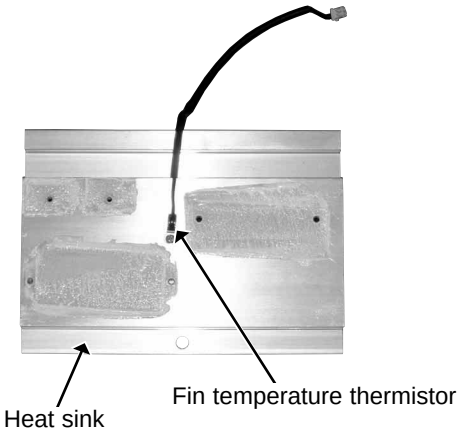
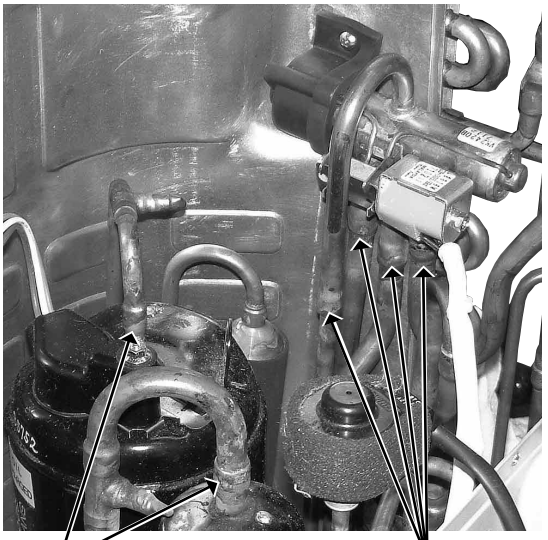


Photo 9

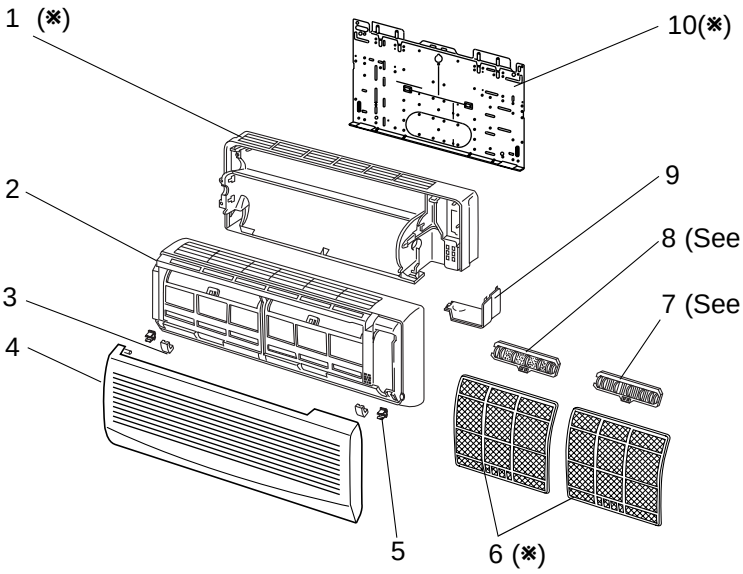


OPERATING PROCEDURE	PHOTOS
6. Removing the compressor/4-way valve (1) Collect refrigerant from refrigerant circuit. Caution: If collecting has not been done enough, refrigerating machine oil may spout out or harmful substance may be generated during welding work. (2) Remove Indoor/outdoor connecting wire and power supply cable. (3) Remove the top panel, service panel, front panel and back panel. (4) Remove the inverter assembly. (5) In case of removing 4-way valve, detach four brazed joints first. (Photo 10) (6) Remove the terminal cover then pull out the lead wire from the compressor terminal. Remove the soundproof material. (7) Detach brazed joints of compressor suction and discharge pipes. (Photo 10) (8) Remove the compressor nuts and remove the compressor.	**Photo 10**  Compressor welded parts 4-way valve welded parts

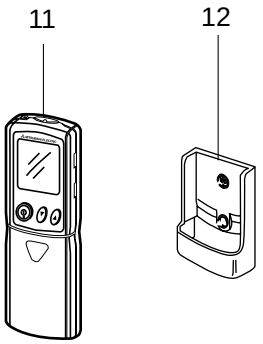
15 PARTS LIST

MSC-A07WV -E1 (WH)
MSC-A09WV -E1 (WH)
MSC-A12WV -E1 (WH)

15-1. INDOOR UNIT STRUCTURAL PARTS



15-2. ACCESSORY AND REMOTE CONTROLLER



(※) These figures show about MSC-A12WV.

15-1. INDOOR UNIT STRUCTURAL PARTS

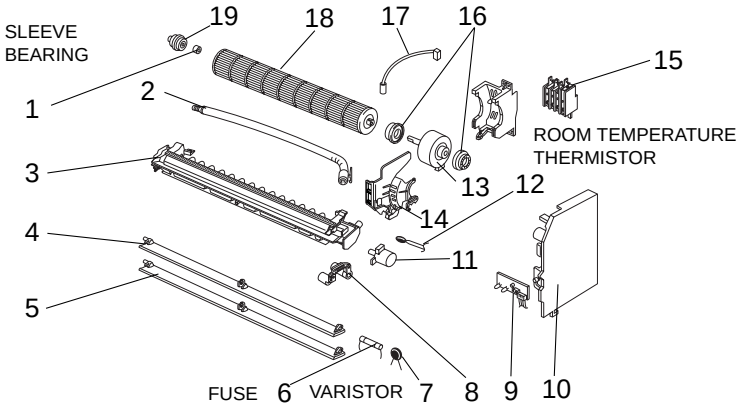
No.	Part No.	Part Name	Symbol in Wiring Diagram	Q'ty/unit			Remarks
				MSC-A07WV-E1 (WH)	MSC-A09WV-E1 (WH)	MSC-A12WV-E1 (WH)	
1	E02 749 234	BOX(WH)		1	1		
	E02 751 234	BOX(WH)				1	
2	E02 749 000	PANEL ASSEMBLY(WH)		1	1	1	Including No.3,4,5
3	E02 749 067	SCREW CAP(WH)		2	2	2	2PCS/SET
4	E02 749 010	FRONT PANEL(WH)		1	1	1	
5	E02 408 142	CATCH		2	2	2	2PCS/SET
6	E02 749 100	AIR FILTER		2	2		
	E02 751 100	AIR FILTER				2	
7	————	AIR CLEANING FILTER		1	1	1	MAC-1300FT
8	————	DEODORIZING FILTER		1	1	1	MAC-1800DF
9	E02 749 975	CORNER BOX (RIGHT)		1	1	1	
10	E02 408 970	INSTALLATION PLATE		1	1		
	E02 751 970	INSTALLATION PLATE				1	

15-2. ACCESSORY AND REMOTE CONTROLLER

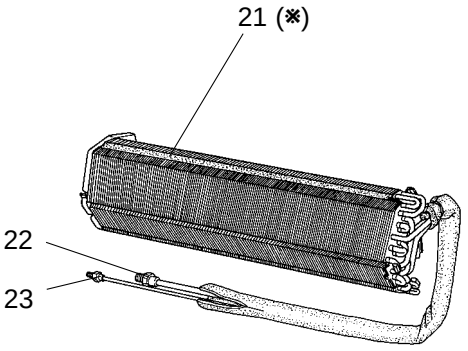
11	E02 749 426	REMOTE CONTROLLER		1	1	1	
12	E02 527 083	REMOTE CONTROLLER HOLDER		1	1	1	

MSC-A07WV -E1 (WH) MSC-A09WV -E1 (WH) MSC-A12WV -E1 (WH)

15-3. INDOOR UNIT ELECTRICAL PARTS AND FUNCTIONAL PARTS



15-4. INDOOR UNIT HEAT EXCHANGER



(※)These figures show about MSC-A12WV.

15-3. INDOOR UNIT ELECTRICAL PARTS AND FUNCTIONAL PARTS

Part number that is circled is not shown in the illustration.

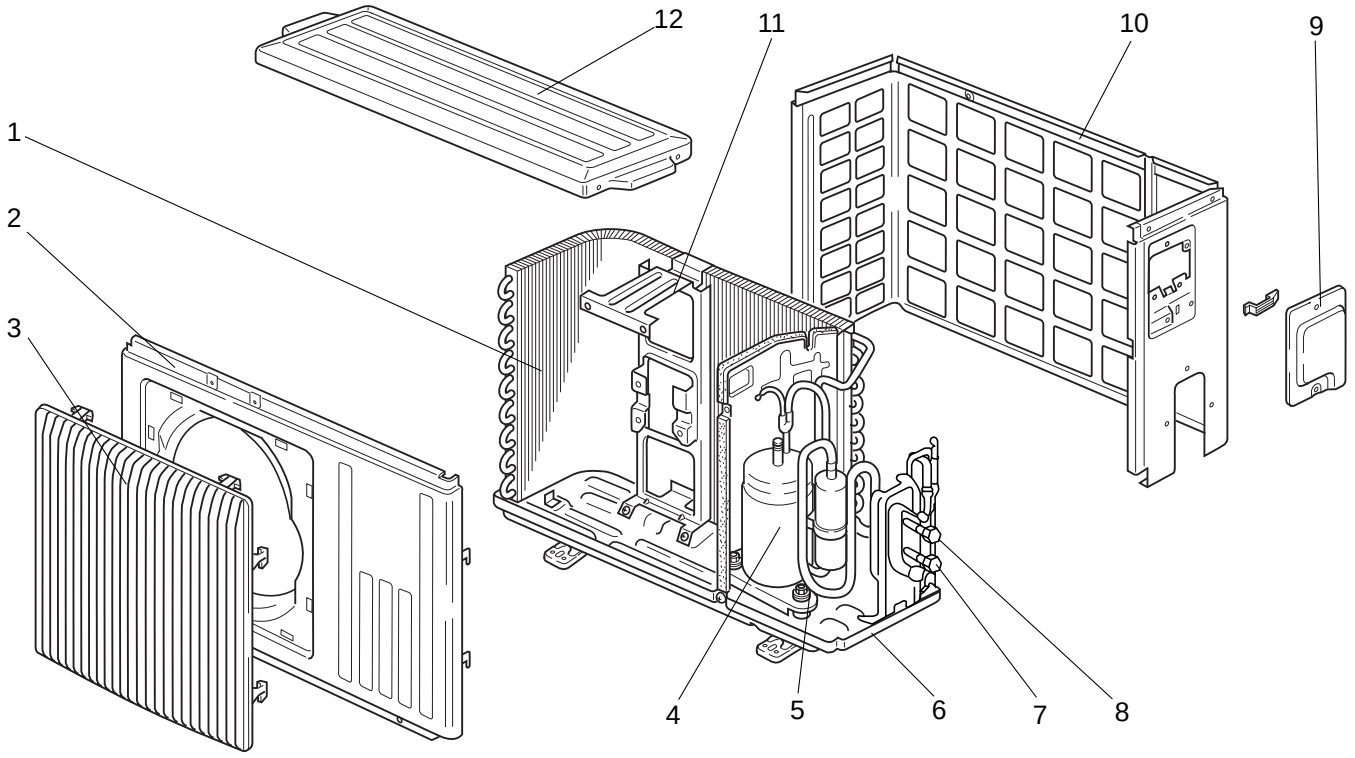
No.	Part No.	Part Name	Symbol in Wiring Diagram	Q'ty/unit			Remarks
				MSC-A07WV-E1 (WH)	MSC-A09WV-E1 (WH)	MSC-A12WV-E1 (WH)	
1	E02 001 504	SLEEVE BEARING		1	1	1	
2	E02 661 702	DRAIN HOSE		1	1	1	
3	E02 749 235	NOZZLE ASSEMBLY(WH)		1	1	1	
4	E02 749 040	VANE UPPER (WH)		1	1	1	
5	E02 749 041	VANE LOWER (WH)		1	1	1	
6	E02 127 382	FUSE	F11	1	1	1	3.15A
7	E02 749 385	VARISTOR	NR11, NR12	2	2	2	
8	E02 763 034	VANE CRANK SET		1	1	1	
9	E02 749 468	POWER MONITOR, RECEIVER P.C. BOARD		1	1	1	
10	E02 749 452	ELECTRONIC CONTROL P.C.BOARD		1			AUTO RESTART
	E02 750 452	ELECTRONIC CONTROL P.C.BOARD			1		AUTO RESTART
	E02 751 452	ELECTRONIC CONTROL P.C.BOARD				1	AUTO RESTART
11	E02 749 303	VANE MOTOR	MV	1	1	1	
12	E02 151 308	ROOM TEMPERATURE THERMISTOR	RT11	1	1	1	
13	E02 749 300	INDOOR FAN MOTOR	MF	1	1		RC4V19-□□
	E02 751 300	INDOOR FAN MOTOR	MF			1	RC4V19-□□
14	E02 749 333	MOTOR BAND		1	1	1	
15	E02 691 375	TERMINAL BLOCK	TB	1	1	1	
16	E02 665 505	FAN MOTOR RUBBER MOUNT		2	2		2PCS/SET
	E02 151 505	FAN MOTOR RUBBER MOUNT				2	2PCS/SET
17	E02 749 307	INDOOR COIL THERMISTOR	RT12	1	1	1	
18	E02 749 302	LINE FLOW FAN		1	1	1	
19	E02 408 509	BEARING MOUNT		1	1		
	E02 751 509	BEARING MOUNT				1	
20	E02 408 381	THERMAL FUSE		1	1	1	

14-4. INDOOR UNIT HEAT EXCHANGER

21	E02 749 620	INDOOR HEAT EXCHANGER		1	1		
	E02 751 620	INDOOR HEAT EXCHANGER				1	
22	E02 151 666	UNION(GAS)		1	1		ϕ9.52
	E02 155 666	UNION(GAS)				1	ϕ12.7
23	E02 151 667	UNION(LIQUID)		1	1	1	ϕ6.35

MU-A07WV -E1
MU-A09WV -E1
MU-A12WV -E1

15-5. OUTDOOR UNIT STRUCTURAL PARTS

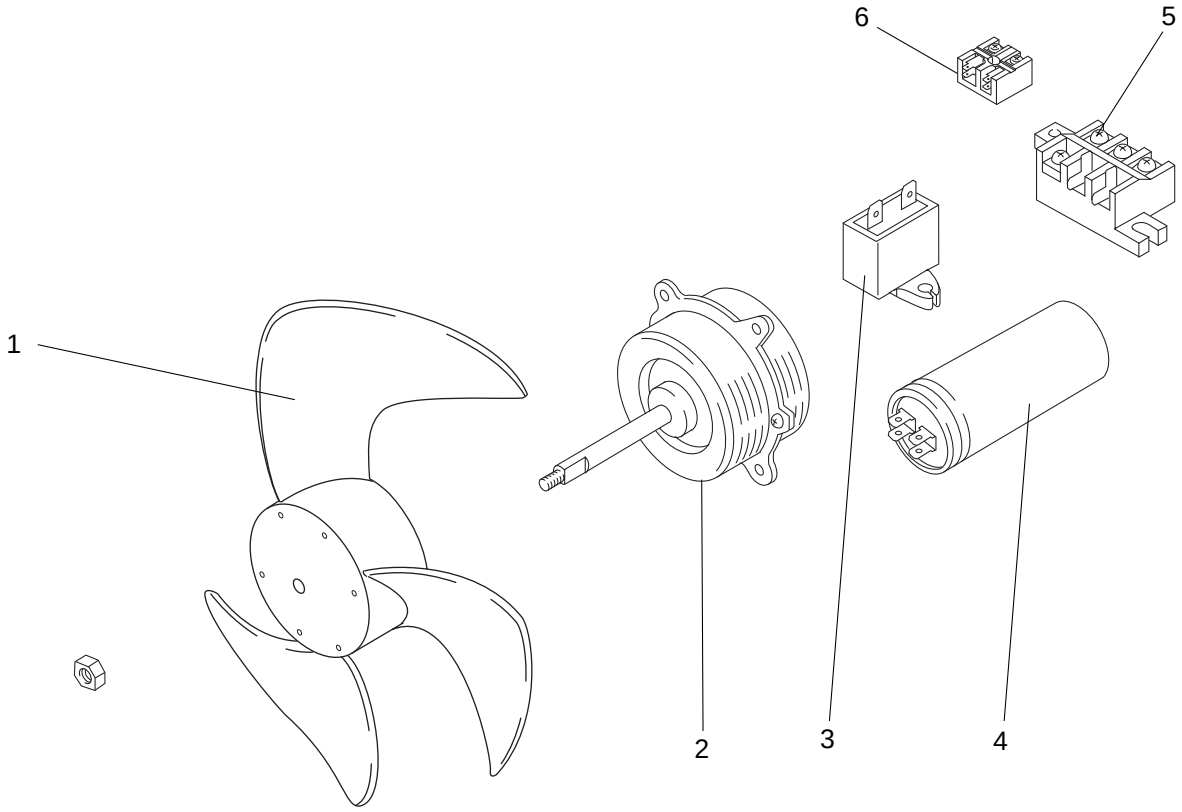


Part number that is circled is not shown in the illustration.

No.	Part No.	Part name	Symbol in Wiring Diagram	Q'ty/unit			Remarks
				MU-A07WV- E1	MU-A09WV- E1	MU-A12WV- E1	
1	E02 336 630	OUTDOOR HEAT EXCHANGER		1	1	1	
2	E02 336 232	CABINET		1	1	1	
3	E02 336 521	GRILLE(OUT)		1	1	1	
4	E02 742 900	COMPRESSOR	MC	1			RN092VHSHT
	E02 743 900	COMPRESSOR	MC		1		RN099VHSHT
	E02 754 900	COMPRESSOR	MC			1	RN135VHSHT
5	E02 075 506	COMPRESSOR RUBBER SET		3	3	3	3RUBBERS/SET
6	E02 340 290	BASE		1	1	1	
7	E02 742 661	STOP VALVE(GAS)		1	1		ϕ9.52
	E02 747 661	STOP VALVE(GAS)				1	ϕ12.7
8	E02 742 662	STOP VALVE(LIQUID)		1	1	1	ϕ6.35
9	E02 336 245	SERVICE PANEL		1	1	1	
10	E02 339 233	BACK PANEL		1	1		
	E02 440 233	BACK PANEL				1	
11	E02 336 515	MOTOR SUPPORT		1	1	1	
12	E02 336 297	TOP PANEL		1	1	1	
(13)	E02 156 936	CAPILLARY TUBE		1			ϕ3.0xϕ1.4x500
	E02 408 936	CAPILLARY TUBE			1		ϕ3.0xϕ1.4x700
	E02 441 936	CAPILLARY TUBE				1	ϕ3.0xϕ1.4x550

MU-A07WV -E1 MU-A09WV -E1 MU-A12WV -E1

15-6. OUTDOOR UNIT ELECTRICAL PARTS AND FUNCTIONAL PARTS

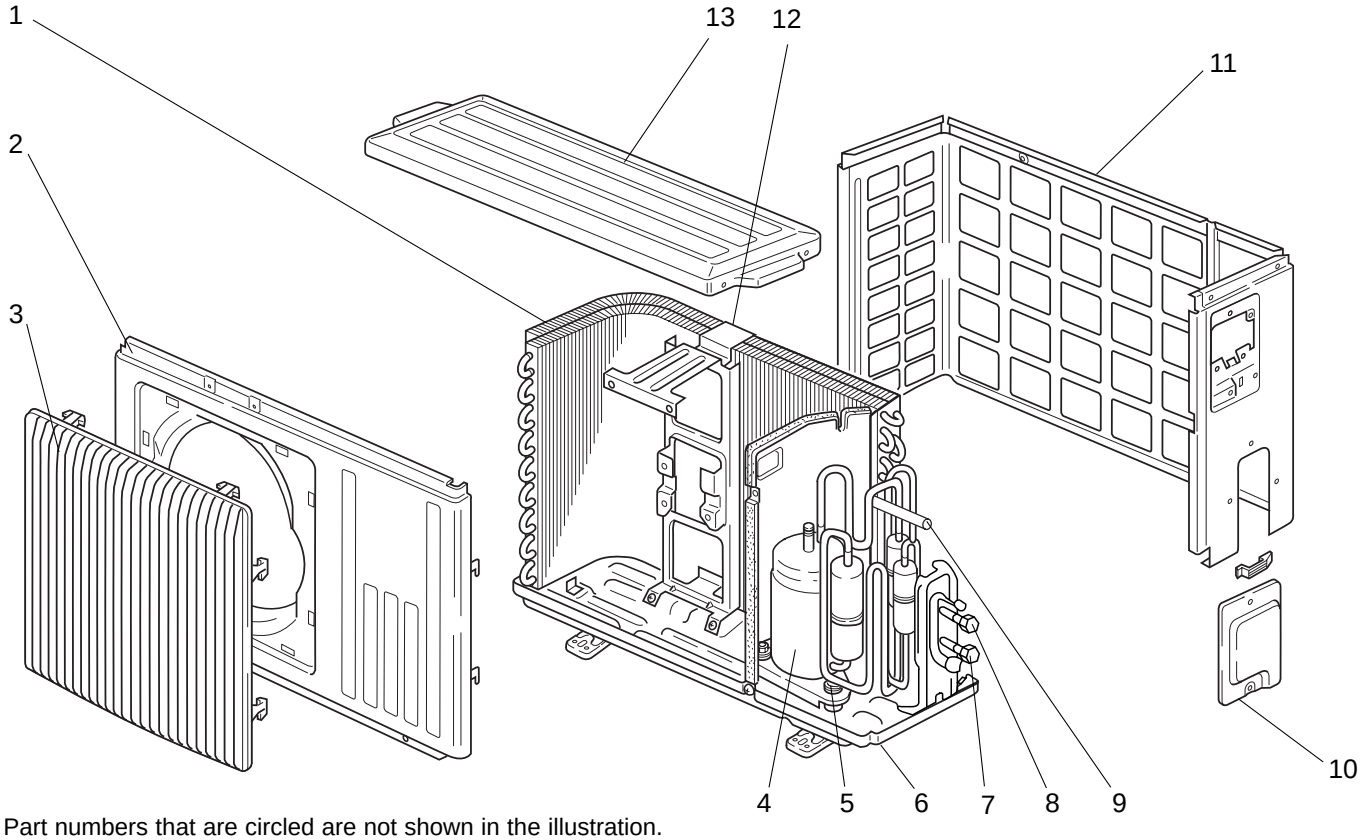


Part numbers that are circled are not shown in the illustration.

No.	Part No.	Part name	Symbol in Wiring Diagram	Q'ty/unit			Remarks
				MU-A07WV- E1	MU-A09WV- E1	MU-A12WV- E1	
1	E02 665 501	PROPELLER FAN		1	1	1	
2	E02 676 301	OUTDOOR FAN MOTOR	MF	1	1		RA6V23-□□
	E02 677 301	OUTDOOR FAN MOTOR	MF			1	RA6V33-□□
3	E02 661 351	OUTDOOR FAN CAPACITOR	C2	1	1		1.5μF /440V AC
	E02 664 351	OUTDOOR FAN CAPACITOR	C2			1	2.0μF /440V AC
4	E02 752 353	COMPRESSOR CAPACITOR	C1	1			20μF /440V AC
	E02 694 353	COMPRESSOR CAPACITOR	C1		1		25μF /440V AC
	E02 696 353	COMPRESSOR CAPACITOR	C1			1	30μF /440V AC
5	E02 466 375	TERMINAL BLOCK	TB1	1	1	1	3P
6	E02 438 374	TERMINAL BLOCK	TB2	1	1	1	2P
⑦	E02 466 340	COMPRESSOR CONTACTOR	52C	1	1	1	
⑧	E02 128 383	SURGE ABSORBER	DSAR	1	1	1	

MUH-A07WV -E1 MUH-A09WV -E1 MUH-A12WV -E1

15-7. OUTDOOR UNIT STRUCTURAL PARTS



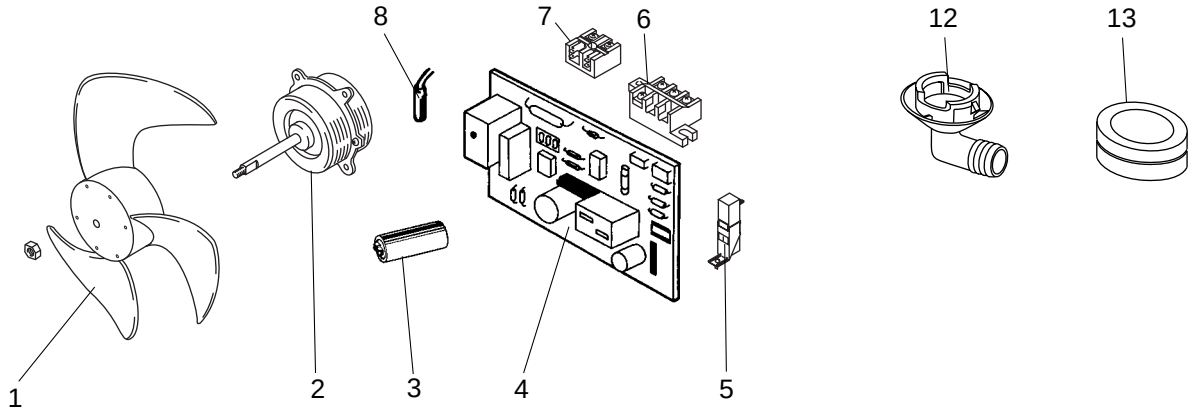
Part numbers that are circled are not shown in the illustration.

No.	Part No.	Part name	Symbol in Wiring Diagram	Q'ty/unit			Remarks
				MUH-A07WV- E1	MUH-A09WV- E1	MUH-A12WV- E1	
1	E02 679 630	OUTDOOR HEAT EXCHANGER		1			
	E02 628 630	OUTDOOR HEAT EXCHANGER			1	1	
2	E02 336 232	CABINET		1	1	1	
3	E02 336 521	GRILLE(OUT)		1	1	1	
4	E02 742 900	COMPRESSOR	MC	1			RN092VHSHT
	E02 753 900	COMPRESSOR	MC		1		RN104VHSHT
	E02 754 900	COMPRESSOR	MC			1	RN135VHSHT
5	E02 075 506	COMPRESSOR RUBBER SET		3	3	3	3RUBBERS/SET
6	E02 340 290	BASE		1	1	1	
7	E02 742 661	STOP VALVE(GAS)		1	1		ϕ9.52
	E02 747 661	STOP VALVE(GAS)				1	ϕ12.7
8	E02 745 662	STOP VALVE(LIQUID)		1	1	1	ϕ6.35
9	E02 745 961	4-WAY VALVE		1	1		
	E02 735 961	4-WAY VALVE				1	
10	E02 336 245	SERVICE PANEL		1	1	1	
11	E02 440 233	BACK PANEL		1	1	1	
12	E02 336 515	MOTOR SUPPORT		1			
	E02 442 515	MOTOR SUPPORT			1	1	
13	E02 336 297	TOP PANEL		1	1	1	
⑭	E02 159 936	CAPILLARY TUBE		2			ϕ3.0xϕ1.4x800
	E02 156 936	CAPILLARY TUBE			2	2	ϕ3.0xϕ1.4x500
	E02 752 936	CAPILLARY TUBE		1			ϕ3.0xϕ1.4x1050
	E02 013 936	CAPILLARY TUBE			1		ϕ3.0xϕ1.4x1300
	E02 412 936	CAPILLARY TUBE			1		ϕ3.0xϕ1.6x600
	E02 134 937	CAPILLARY TUBE				1	ϕ3.0xϕ1.6x400
	E02 754 936	CAPILLARY TUBE				1	ϕ3.0xϕ1.6x1350
	E02 176 936	CAPILLARY TUBE		1			ϕ3.0xϕ1.6x350
⑮	E02 154 642	CHECK VALVE		1	1	1	

MUH-A07WV -E1 MUH-A09WV -E1 MUH-A12WV -E1

15-8. OUTDOOR UNIT ELECTRICAL PARTS AND FUNCTIONAL PARTS

15-9. ACCESSORY



15-8. OUTDOOR UNIT ELECTRICAL PARTS AND FUNCTIONAL PARTS

Part numbers that are circled are not shown in the illustration.

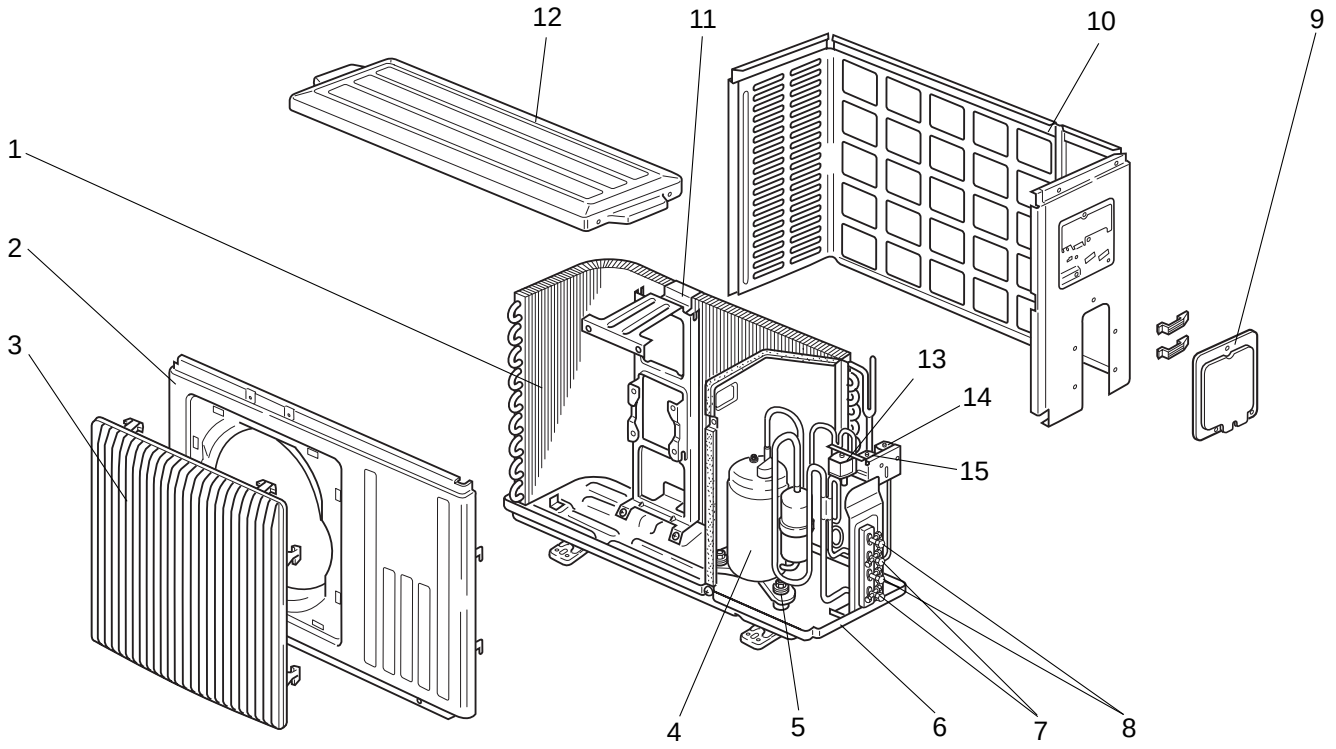
No.	Part No.	Part name	Symbol in Wiring Diagram	Q'ty/unit			Remarks
				MUH-A07WV- E1	MUH-A09WV- E1	MUH-A12WV- E1	
1	E02 665 501	PROPELLER FAN		1	1	1	
2	E02 671 301	OUTDOOR FAN MOTOR	MF	1			RA6V23-□□
	E02 672 301	OUTDOOR FAN MOTOR	MF		1	1	RA6V33-□□
3	E02 752 353	COMPRESSOR CAPACITOR	C1	1			20μF /440V AC
	E02 694 353	COMPRESSOR CAPACITOR	C1		1		25μF /440V AC
	E02 696 353	COMPRESSOR CAPACITOR	C1			1	30μF /440V AC
4	E02 752 451	DEICER P.C. BOARD		1			
	E02 754 451	DEICER P.C. BOARD			1	1	
5	E02 128 383	SURGE ABSORBER	DSAR	1	1	1	
6	E02 466 375	TERMINAL BLOCK	TB1	1	1	1	3P
7	E02 697 374	TERMINAL BLOCK	TB2	1	1	1	2P
8	E02 699 310	DEFROST THERMISTOR	RT61	1	1	1	
⑨	E02 440 490	R. V. COIL	21S4	1	1	1	
⑩	E02 095 382	FUSE	F61	1	1	1	250V 2A
⑪	E02 085 385	VARISTOR	NR61	1	1	1	

15-9. ACCESSORY

12	E02 444 704	DRAIN SOCKET		1	1	1	
13	E02 440 705	DRAIN CAP		2	2	2	2PCS/SET

MUX-A10WV -E1

15-10. OUTDOOR UNIT STRUCTURAL PARTS

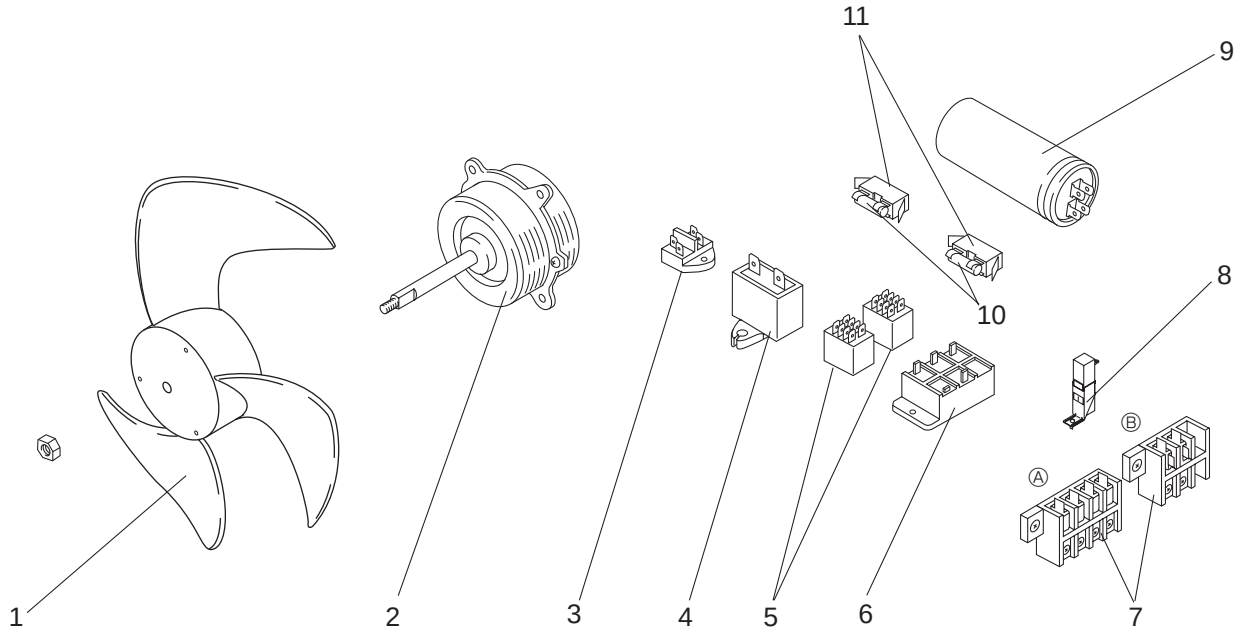


Part numbers that are circled are not shown in the illustration.

No.	Part No.	Part name	Symbol in Wiring Diagram	Q'ty/unit	Remarks
				MUX-A10WV-E1	
1	E02 755 630	OUTDOOR HEAT EXCHANGER		1	
2	E02 336 232	CABINET		1	
3	E02 336 521	GRILLE(OUT)		1	
4	E02 742 900	COMPRESSOR	MC	1	RN092VHSHT
5	E02 075 506	COMPRESSOR RUBBER SET		3	3RUBBERS/SET
6	E02 755 290	BASE		1	
7	E02 755 661	STOP VALVE(GAS)		2	ϕ9.52
8	E02 755 662	STOP VALVE(LIQUID)		2	ϕ6.35
9	E02 755 245	SERVICE PANEL		1	
10	E02 755 233	BACK PANEL		1	
11	E02 336 515	MOTOR SUPPORT		1	
12	E02 336 297	TOP PANEL		1	
13	E02 750 490	SOLENOID COIL	21R	1	
14	E02 751 490	SOLENOID COIL	21R1	1	
15	E02 755 490	SOLENOID COIL	21R2	1	
⑯	E02 755 492	SOLENOID VALVE(21R1,21R2)		2	
⑰	E02 759 492	SOLENOID VALVE(21R)		1	
⑱	E02 024 936	CAPILLARY TUBE		1	ϕ3.0xϕ1.4x1000
	E02 289 936	CAPILLARY TUBE		1	(A, B room) ϕ3.0xϕ1.6x900
	E02 642 936	CAPILLARY TUBE		2	(A, B room) ϕ3.0xϕ1.4x400

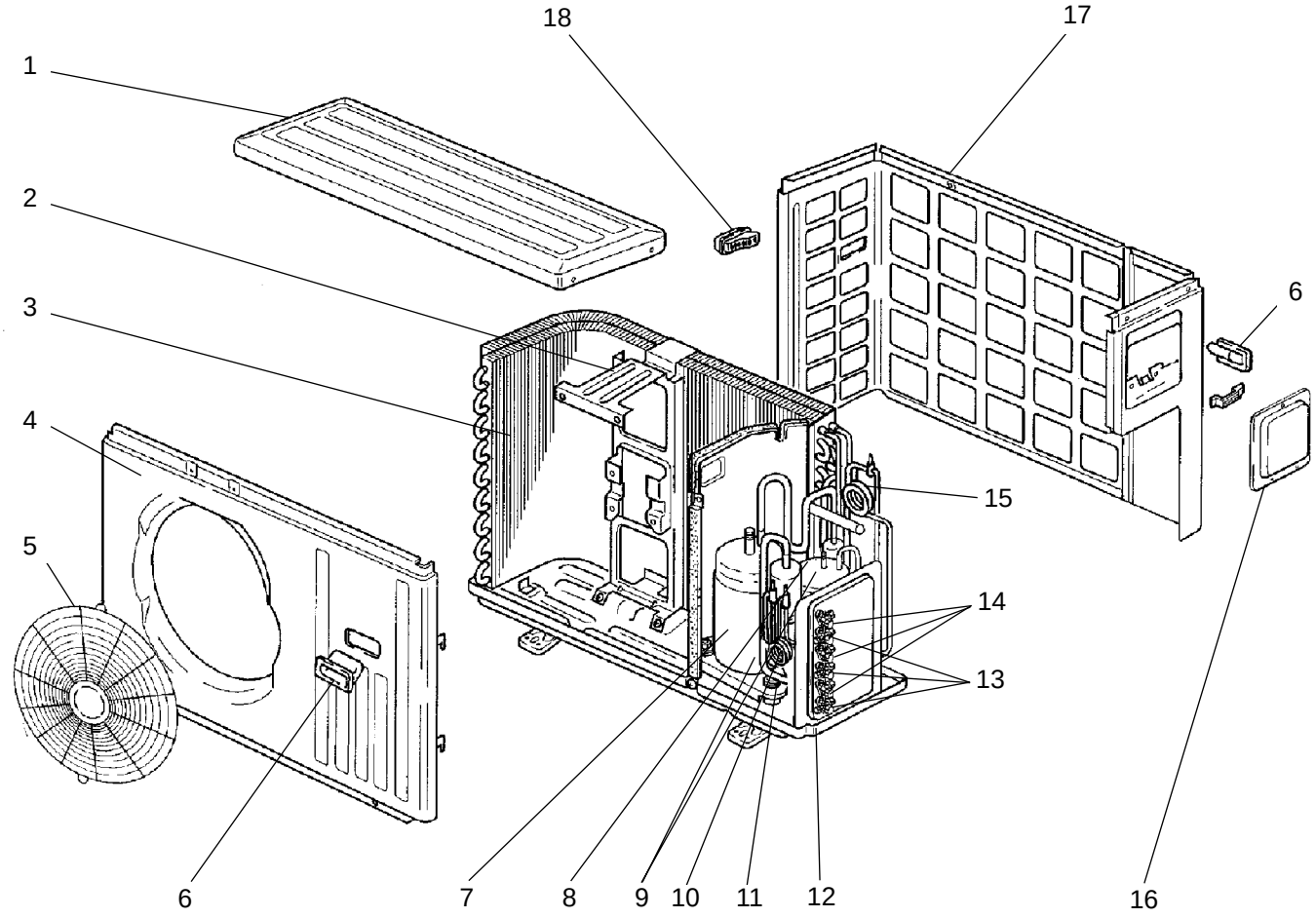
MUX-A10WV -E1

15-11. OUTDOOR UNIT ELECTRICAL PARTS AND FUNCTIONAL PARTS



No.	Part No.	Part name	Symbol in Wiring Diagram	Q'ty/unit	Remarks
				MUX-A10WV- E1	
1	E02 665 501	PROPELLER FAN		1	
2	E02 677 301	OUTDOOR FAN MOTOR	MF	1	RA6V33-□□
3	E02 056 374	TERMINAL BLOCK	TB3	1	
4	E02 664 351	OUTDOOR FAN CAPACITOR	C2	1	2.0μF /440V AC
5	E02 755 341	RELAY	X1,X2	2	
6	E02 755 340	COMPRESSOR CONTACTOR	52C	1	
7	E02 637 374	TERMINAL BLOCK	TB2	1	4P FIGURE Ⓐ
	E02 755 374	TERMINAL BLOCK	TB1	1	3P FIGURE Ⓑ
8	E02 128 383	SURGE ABSORBER	DSAR	1	
9	E02 742 353	COMPRESSOR CAPACITOR	C1	1	20μF /450V AC
10	E02 095 382	FUSE	F61,F62	2	250V/ 2A
11	E07 001 241	FUSE HOLDER		2	

MUX-A19WV -E1 MUX-A20WV -E1 MUX-A25WV -E1 MUX-A26WV -E1
15-12. OUTDOOR UNIT STRUCTURAL PARTS



These figures show MUX-A20WV.

15-12. OUTDOOR UNIT STRUCTURAL PARTS

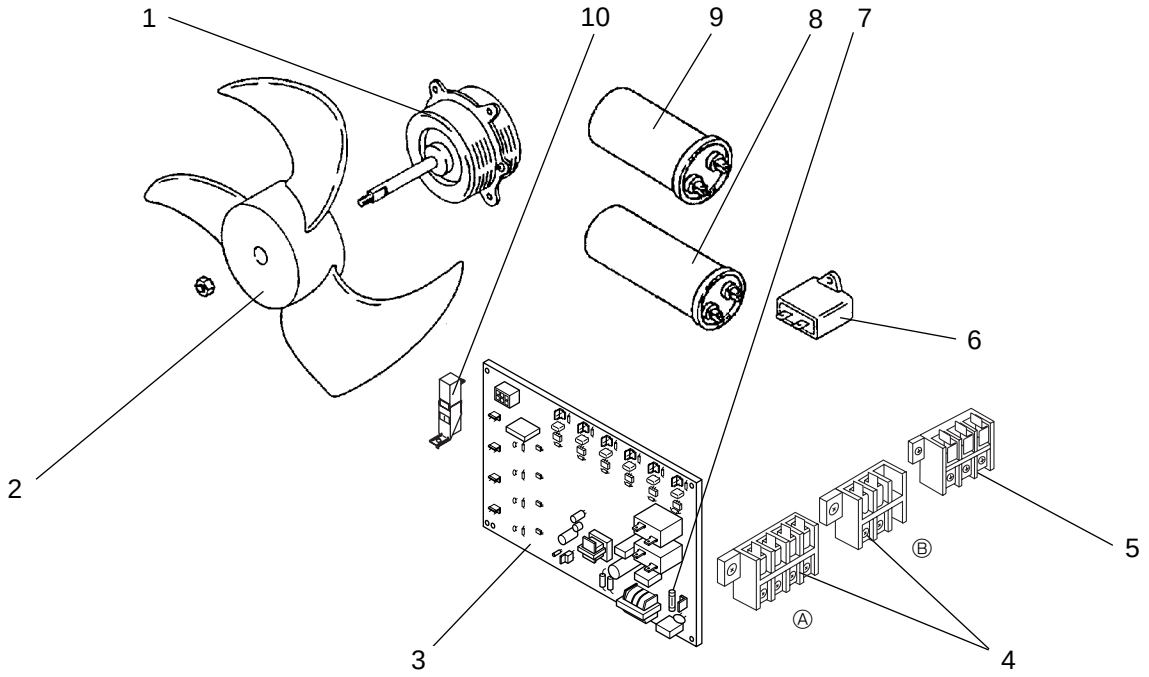
Part numbers that are circled are not shown in the illustration.

No.	Part No.	Part Name	Symbol in Wiring Diagram	Q'ty / unit				Remarks
				MUX-A19 WV-E1	MUX-A20 WV-E1	MUX-A25 WV-E1	MUX-A26 WV-E1	
1	E02 636 297	TOP PANEL		1	1	1	1	
2	E02 636 515	MOTOR SUPPORT		1	1	1		
	E02 726 515	MOTOR SUPPORT					1	
3	E02 756 630	OUTDOOR HEAT EXCHANGER		1	1	1		
	E02 759 630	OUTDOOR HEAT EXCHANGER					1	
4	E02 636 232	CABINET		1	1	1		
	E02 736 232	CABINET					1	
5	E02 527 521	FAN GUARD		1	1	1	1	
6	E07 001 009	HANDLE		2	2	2	2	
7	E02 742 900	COMPRESSOR	MC1	1				RN092VHSHT
	E02 743 900	COMPRESSOR	MC1		1			RN099VHSHT
8	E02 744 900	COMPRESSOR	MC1,MC2	1		2	1	RN145VHSHT
9	E02 746 900	COMPRESSOR	MC1,MC2		1		1	RN125VHSHT
10	E02 756 936	CAPILLARY TUBE		1				(B room) φ3.0×φ1.4×1100
	E02 199 936	CAPILLARY TUBE		1				(A room) φ3.0×φ1.4×850
	E02 757 936	CAPILLARY TUBE			1			(A room) φ3.0×φ1.4×950
	E02 289 936	CAPILLARY TUBE			3			(B, C room) φ3.0×φ1.6×900
	E02 408 936	CAPILLARY TUBE				2		(A, B room) φ3.0×φ1.4×700
	E02 140 936	CAPILLARY TUBE					1	(C, D room) φ3.0×φ1.8×800
	E02 176 937	CAPILLARY TUBE					1	(A, B room) φ3.0×φ2.0×700
	E02 077 937	CAPILLARY TUBE					2	(A, B room) φ3.0×φ1.8×700
	E02 726 936	CAPILLARY TUBE					2	(C, D room) φ3.0×φ1.6×600
11	E02 075 506	COMPRESSOR RUBBER SET		6	6	6	6	3RUBBERS/SET
12	E02 636 290	BASE		1	1	1	1	
13	E02 756 661	STOP VALVE (GAS)		1		2	2	φ12.7
	E02 757 661	STOP VALVE (GAS)		1	3		2	φ9.52
14	E02 756 662	STOP VALVE (LIQ)		2	3	2	4	φ6.35
15	E02 024 936	CAPILLARY TUBE			1		2	φ3.0×φ1.4×1000
16	E02 636 245	SERVICE PANEL		1	1	1		
	E02 726 245	SERVICE PANEL					1	
17	E02 756 233	BACK PANEL (OUT)		1	1	1		
	E02 726 233	BACK PANEL (OUT)					1	
18	E02 721 009	HANDLE		1	1	1	1	
(19)	E02 637 490	SOLENOID COIL	21RB		1			
(20)	E02 652 490	SOLENOID COIL (B)	21R3		1			
(21)	E02 652 491	SOLENOID COIL (C)	21R4		1			
(22)	E02 726 490	SOLENOID COIL (BALANCE)	21RA				1	
(23)	E02 728 490	SOLENOID COIL (BALANCE)	21RB				1	
(24)	E02 729 490	SOLENOID COIL (A)	21R1				1	
(25)	E02 730 490	SOLENOID COIL (B)	21R2				1	
(26)	E02 726 491	SOLENOID COIL (C)	21R3				1	
(27)	E02 727 491	SOLENOID COIL (D)	21R4				1	
(28)	E02 755 492	SOLENOID VALVE			2		4	
(29)	E02 759 492	SOLENOID VALVE			1		2	

MUX-A19WV -E1 MUX-A20WV -E1 MUX-A25WV -E1 MUX-A26WV -E1

15-13. OUTDOOR UNIT

FUNCTIONAL PARTS AND ELECTRICAL PARTS



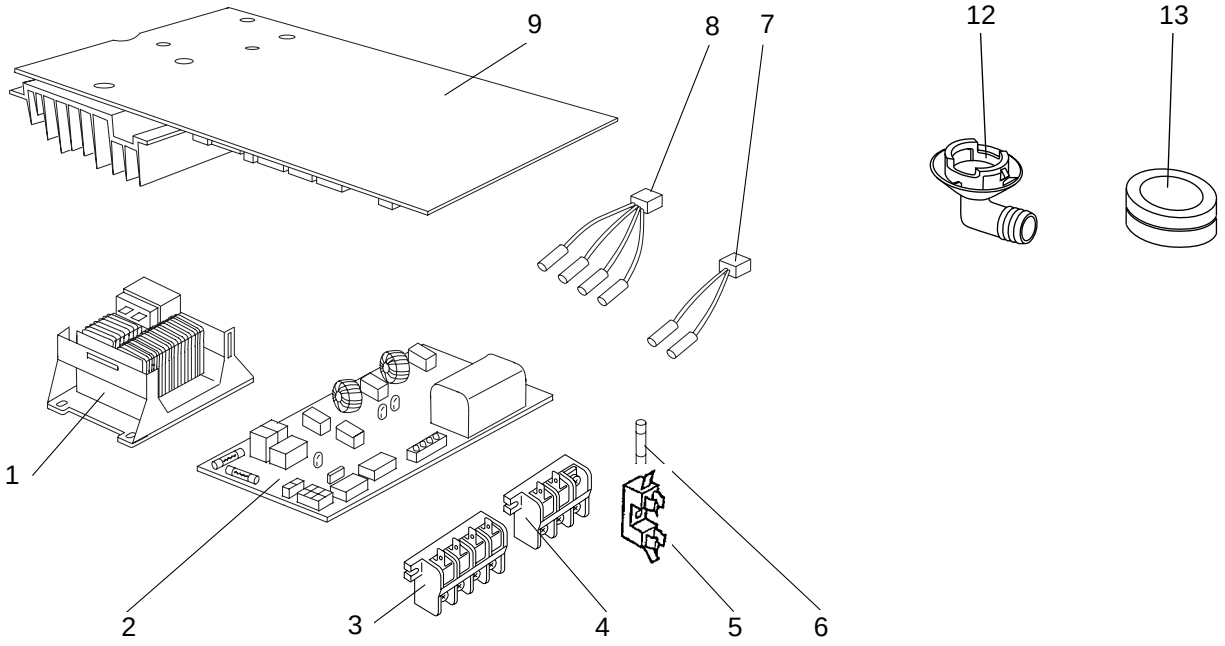
Part numbers that are circled are not shown in the illustration.

No.	Part No.	Part Name	Symbol in Wiring Diagram	Q'ty / unit				Remarks
				MUX-A19 WV-E1	MUX-A20 WV-E1	MUX-A25 WV-E1	MUX-A26 WV-E1	
1	E02 756 301	OUTDOOR FAN MOTOR	MF61	1	1	1		RA6V60-□□
	E02 726 301	OUTDOOR FAN MOTOR	MF61				1	RA6V60-□□
2	E02 214 501	PROPELLER FAN		1	1	1	1	
3	E02 756 444	OUTDOOR CONTROL P.C. BOARD		1				
	E02 757 444	OUTDOOR CONTROL P.C. BOARD			1			
	E02 758 444	OUTDOOR CONTROL P.C. BOARD				1		
	E02 759 444	OUTDOOR CONTROL P.C. BOARD					1	
4	E02 637 374	TERMINAL BLOCK	TB2	1	1	1		4P FIGURE Ⓐ
			TB2,TB3				2	
	E02 637 377	TERMINAL BLOCK	TB3		1			3P FIGURE Ⓑ
5	E02 756 374	TERMINAL BLOCK	TB1	1	1	1	1	3P
6	E02 138 351	OUTDOOR FAN CAPACITOR	C61	1	1			3.0μF/440V AC
	E02 064 351	OUTDOOR FAN CAPACITOR	C61			1	1	4.0μF/440V AC
7	E02 127 382	FUSE	F61	1	1	1	1	3.15A
8	E02 742 353	COMPRESSOR CAPACITOR	C2	1				20μF/450V AC
	E02 665 353	COMPRESSOR CAPACITOR	C2				1	25μF/450V AC
			C1,C2		2			
9	E02 667 353	COMPRESSOR CAPACITOR	C1	1			1	30μF/450V AC
			C1,C2			2		
10	E02 128 383	SURGE ABSORBER	DSAR	1	1	1	1	
(11)	E07 056 374	TERMINAL BLOCK	TB4	1	1	1	1	
(12)	E02 085 385	SURGE ABSORBER	NR61	1	1	1	1	

MXZ-A18WV - E1

15-14. OUTDOOR UNIT FUNCTIONAL PARTS AND ELECTRICAL PARTS

15-15. ACCESSORY



15-14. OUTDOOR UNIT FUNCTIONAL PARTS AND ELECTRICAL PARTS

Part numbers that are circled are not shown in the illustration.

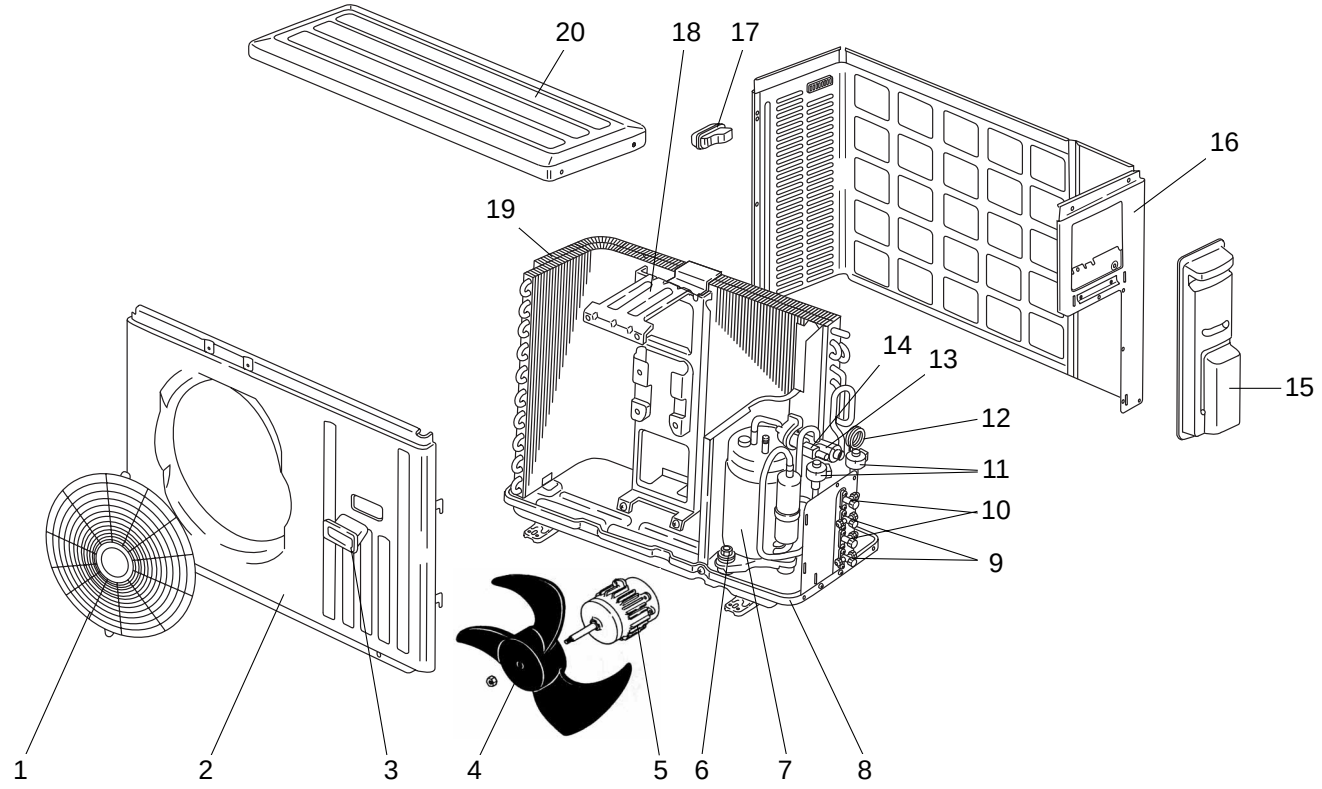
No.	Parts No.	Parts Name	Symbol in Wiring Diagram	Q'ty / unit	Remarks
				MXZ-A18WV- E1	
1	E02 735 337	REACTOR	L	1	
2	E02 735 444	NOISE FILTER P.C. BOARD		1	
3	E02 735 374	TERMINAL BLOCK	TB2	1	
4	E02 573 375	TERMINAL BLOCK	TB1	1	
5	E02 735 241	FUSE HOLDER		1	
6	E02 735 382	FUSE	F61	1	20A/ 250VAC
7	E02 735 306	GAS PIPE TEMPERATURE THERMISTOR SET	RT6A, RT6B	1	
8	E02 735 308	THERMISTOR SET	RT61,RT62,RT63,RT68	1	
9	E02 735 450	ELECTRONIC CONTROL P.C. BOARD		1	
⑩	E02 735 309	FIN TEMPERATURE THERMISTOR	RT65	1	
⑪	E02 735 385	FUSE&VARISTOR	F912,NR63	1	3.15A 250V

15-15. ACCESSORY

12	E02 444 704	DRAIN SOCKET		1	
13	E02 444 705	DRAIN CAP		2	2PCS/SET

MXZ-A18WV - E1

15-16. OUTDOOR UNIT FUNCTIONAL PARTS AND STRUCTURAL PARTS



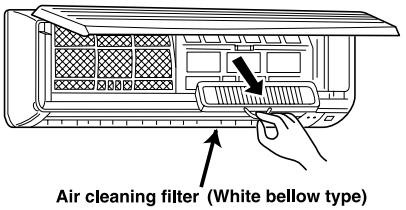
Part numbers that are circled are not shown in the illustration.

No.	Parts No.	Parts Name	Symbol in Wiring Diagram	Q'ty / unit MXZ-A18WV- E1	Remarks
1	E02 527 521	FAN GUARD		1	
2	E02 636 232	CABINET		1	
3	E07 001 009	HANDLE		1	
4	E02 214 501	PROPELLER FAN		1	
5	E02 735 301	OUTDOOR FAN MOTOR	MF	1	RA6V49-□□
6	E02 065 506	COMP RUBBER SET		3	3RUBBERS/SET
7	E02 735 900	COMPRESSOR	MC	1	SNV-092FJYH
8	E02 735 290	BASE		1	
9	E02 735 661	STOP VALVE (GAS)		2	
10	E02 735 662	STOP VALVE (LIQUID)		2	
11	E02 735 640	EXPANSION VALVE	LEV(A,B)	2	
12	E02 735 937	CAPILLARY TUBE		1	ϕ1.8×ϕ0.6×750
13	E02 735 961	4-WAY VALVE		1	
14	E02 735 490	SOLENOID COIL	21S4	1	
15	E02 735 245	SERVICE PANEL		1	
16	E02 735 233	BACK PANEL (OUT)		1	
17	E02 721 009	HANDLE		1	
18	E02 636 515	MOTOR SUPPORT		1	
19	E02 735 630	OUTDOOR HEAT EXCHANGER		1	
20	E02 636 297	TOP PANEL		1	
(21)	E02 735 933	MUFFLER		2	
(22)	E02 069 936	CAPILLARY TUBE		2	ϕ3.0×ϕ2.0×400
(23)	E02 735 936	CAPILLARY TUBE		2	ϕ3.0×ϕ1.8×600

15-17. AIR CLEANING FILTER

- AIR CLEANING FILTER removes fine dust of 0.01 micron from air by means of static electricity.
- Normal life of AIR CLEANING FILTER is 4 months. However, when it becomes dirty, replace it as soon as possible.
- Clogged AIR CLEANING FILTER may reduce the air conditioner capacity or cause frost on the air outlet.
- DO NOT reuse AIR CLEANING FILTER even if it is washed.
- DO NOT remove or attach AIR CLEANING FILTER during unit operation.

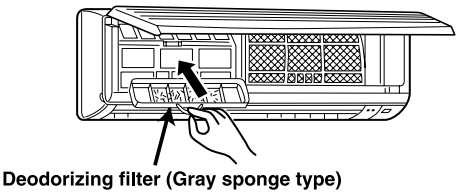
Model	Part No.
MSC-A07WV-E1 MSC-A09WV-E1 MSC-A12WV-E1	MAC-1300FT



15-18. DEODORIZING FILTER

- DEODORIZING FILTER removes ammonia, hydrogen sulphide emitted from tobacco, and odor of pets.
- Clean DEODORIZING FILTER every two weeks. If the filter is particularly dirty, clean the filter more often.
- For cleaning, soak the filter in warm water for a while, and then wash and rinse it. Dry the filter in the shade thoroughly.
- When the filter color is still dark even after cleaning, replace the filter with a new one.
  Replace the filter at least once a year.

Model	Part No.
MSC-A07WV-E1 MSC-A09WV-E1 MSC-A12WV-E1	MAC-1800DF



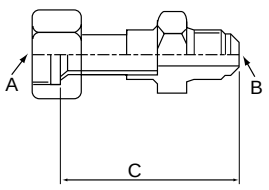
- DEODORIZING FILTER and AIR CLEANING FILTER can be attached on either side.

16 OPTIONAL PARTS

16-1. Different-diameter pipe

MXZ-A18WV	Model name	Connected pipes diameter (mm)	Length A	Length B	Length C
For different-diameter pipes	MAC-454JP	ϕ9.52 — ϕ12.7 (3/8) (1/2)	ϕ9.52 (3/8)	ϕ12.7 (1/2)	69

Unit : mm (inch)



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